

**Monitoring of Harmful Interference  
to the HF Broadcast Service  
IV. Results of the July 1988  
Coordinated Monitoring Period**

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## CONTENTS

ABSTRACT . . . . .	1
1. INTRODUCTION . . . . .	1
2. DATA COLLECTION AND ANALYSIS . . . . .	3
3. MONITORING CAMPAIGN RESULTS. . . . .	10
4. SUMMARY AND CONCLUSIONS. . . . .	23
5. REFERENCES . . . . .	27
APPENDIX A . . . . .	29
APPENDIX B . . . . .	87

## LIST OF FIGURES

FIGURE	PAGE
Figure 1. Histograms showing the numbers of bearings recorded at Anchorage, Alaska, on markers RA (a), and BF (b) and histograms of bearings on marker KV at (c) Sabana Seca, Puerto Rico, and (d) Bockhacken, Federal Republic of Germany . . . . .	11
Figure 2. Locations of emitters of harmful interference indicated by marker ID in Eastern Europe and the Soviet Union during July 1988 . . . . .	13
Figure 3. Locations of emitters of harmful interference indicated by marker ID in the Eastern Soviet Union and China during July 1988 . . . . .	14
Figure 4. Example of the locations of select jammer emitters and associated confidence ellipses for July 1988 . . . . .	16
Figure 5. Cumulative distribution of the number of jammer markers recorded on Radio Free Europe's frequencies . . . . .	24
Figure 6. Cumulative distribution of the number of jammer markers recorded on Radio Liberty's frequencies . . . . .	25
Figure 7. Cumulative distribution of the number of jammer markers recorded on Radio Liberty's Russian frequencies . . . . .	26

## LIST OF TABLES

TABLE		PAGE
Table 1.	Station Locations and Antenna Types . . . . .	4
Table 2.	Monitoring Schedule for July 1988 . . . . .	6
Table 3.	Example of Monitoring Data Obtained during the July 1988 Monitoring Period . . . . .	9
Table 4.	Locations of Emitters of Harmful Interference . . . . .	17
Table 5.	Jammer Identification Markers Observed during the July 1988 Monitoring Period Sorted Alphabetically (a) and Numerically (b) . . . . .	18
Table 6.	Summary of the Specific Broadcasters and Languages that were Observed to be Jammed during the July 1988 Monitoring Period . . . . .	20
Table 7.	Summary of the Numbers of Markers Used to Jam (a) RFE, (b) RL, and (c) RL-Russian Broadcasts . . . . .	22



MONITORING OF HARMFUL INTERFERENCE TO THE HF BROADCAST SERVICE  
IV. RESULTS OF THE JULY 1988 COORDINATED MONITORING PERIOD

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This is the fourth in a series of reports describing the results of studies to determine the location of sources of harmful interference to the high frequency (HF) broadcasting service. Using observations recorded during the July 1988 monitoring program conducted under the auspices of the International Frequency Registration Board, and observations from monitoring stations coordinated by the Institute for Telecommunication Sciences, the report identifies frequently observed emitters of harmful interference and their locations, and notes the extent of such interference with programs of leading international broadcast organizations.

Key words: direction finding; harmful interference; HF broadcasting; HF jamming; HF propagation

# 1. INTRODUCTION

For the first time in over 35 years, the jamming of Radio Liberty's (RL) shortwave broadcasts directed into the Soviet Union has ceased. Also, jamming of Radio Free Europe's (RFE) broadcasts into Eastern Europe, as well as those of Deutsche Welle (DW) into Bulgaria and Kol Israel (IBA) into the Soviet Union, has ceased. This cessation of jamming is believed to be a result of the closer East/West relations that have emerged recently and follows the cessation of jamming of the Voice of America's (VOA) Russian service and the British Broadcasting Corporation's (BBC) Russian service in early 1988. However, the world is not totally free of jamming of shortwave broadcast services, and services like the VOA's Dahri and Pasto languages for example continue to be adversely impacted by intentional harmful interference.

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Prior to the change in the interference environment that occurred with the cessation of jamming to the VOA and BBC Russian services in early 1988, the Institute for Telecommunication Sciences coordinated a worldwide collection of observations of harmful interference (jamming) to the high frequency broadcast service on four separate occasions between October 1984 and June 1986. The results of these monitoring programs have been reported by Sowers et al. (1985, 1986, and 1987). In this report we describe the results of monitoring of the harmful interference to the high frequency broadcast service that were obtained during the July 1988 monitoring program. The results described in this report are indicative of what the HF broadcasting interference environment was like before the most recent cessation of jamming.

The results presented here and in the earlier reports were made possible because of monitoring programs that were organized under the auspices of the International Frequency Registration Board (IFRB) of the International Telecommunication Union (ITU). Resolution COM 5/1 of the First Session of the World Administrative Radio Conference for the planning of the bands allocated to the high frequency broadcasting service (WARC-HFBC) in February 1984 directed the IFRB, with the cooperation of the administrations, "to organize monitoring programs in the bands allocated to the high frequency broadcast services with a view to identifying stations causing interference" and to report the results to the Second Session of the Conference, which was held in 1987 (ITU, 1984). As mentioned above, four such monitoring programs were organized and they were held during the period of time between the first and second conferences. The IFRB presented the results of these programs to the Second Session of the HFBC in February 1987 [Document 9, WARC-HFBC(87)].

Resolution 513 of the Second Session of the HFBC (ITU, 1987) once again directed the IFRB to continue the monitoring programs in the period between the second and a future third session of the conference. The first monitoring program of this second series was held between July 4-24, 1988. In this report we give the results of this program and compare them with those given in Sowers et al. (1985, 1986, 1987).

The reports by Sowers et al. describe the locations of over 100 emitters in the Soviet Union and Eastern Bloc countries used to jam



Western high frequency broadcasts. Most of the jammers presented in those reports did not change drastically in location over the course of the four monitoring periods that were conducted between October 1984 and June 1986. Many changes in the locations of jammers within the Soviet Union, and the manner in which jamming was conducted, were observed during the July 1988 monitoring program. These are described in Section 3 of this report.

In previous reports we presented statistics on the broadcasters and languages that were targeted for jamming by emitters located in the Soviet Union and Eastern Bloc countries. Many changes in these statistics have been noted in the most recent monitoring period. The VOA, BBC, DW, and IBA all experienced decreased interference from jamming to their services into the Soviet Union and Eastern Bloc countries. Section 3.2 presents statistics compiled on the broadcasters and languages that were affected by harmful interference during the July 1988 monitoring program. Prior to discussing this, however, in Section 2 we describe the types of observations that were collected and the procedures used to determine the locations of the jammers.

## 2. DATA COLLECTION AND ANALYSIS

The fifth monitoring program to collect data on harmful interference was conducted between July 4 and 24, 1988 (IFRB 1987). As was the case in previous IFRB monitoring programs, a specific frequency schedule was used during the monitoring period and the participating administrations were requested to forward their data to the IFRB. Several administrations continued to cooperate with ITS by also sending their data directly to the Institute. Cooperating administrations outside the United States include the Federal Republic of Germany, Canada, Sweden, Italy, Norway, Korea, and the United Kingdom. Data from the United States were collected from 13 Federal Communications Commission (FCC) stations located in the continental United States, Puerto Rico, Hawaii, and Alaska. A list of all participating stations and their locations is given in Table 1. Table 1 also lists the antenna types in use at the monitoring stations. The antenna types are also described in the report by Sowers et al. (1985).

As in the past, the collection of data was coordinated by ITS through the development of a frequency schedule for all the participating stations

Table 1. Station Locations and Antenna Types

STATION	CODE	LATITUDE	LONGITUDE	ANTENNA TYPE
ANCHORAGE, ALASKA	AN	61°09'43"N	149°59'55"W	FIXED MONOPOLES W/ GONIOMETER (WIDE APERATURE)
BELFAST, MAINE	BE	44°26'42"N	69°04'58"W	FIXED MONOPOLES W/ GONIOMETER (WIDE APERATURE)
DOUGLAS, ARIZONA	DS	31°30'02"N	109°39'12"W	FIXED MONOPOLES W/ GONIOMETER (WIDE APERATURE)
FERNDAL, WASHINGTON	FE	48°57'21"N	122°33'12"W	FIXED MONOPOLE W/ GONIOMETER (WIDE APERATURE)
VEROBEACH, FLORIDA	FL	07°36'21"N	80°38'06"W	FIXED MONOPOLES W/ GONIOMETER (WIDE APERATURE)
GRAND ISLAND, NEBRASKA	GI	40°55'21"N	98°25'42"W	ROTATING ADCOCK TYPE
KINGSVILLE, TEXAS	KI	27°26'29"N	97°53'00"W	FIXED MONOPOLES W/ GONIOMETER (WIDE APERATURE)
LAUREL, MARYLAND	LR	39°09'54"N	76°49'17"W	FIXED MONOPOLES W/ GONIOMETER (WIDE APERATURE)
LIVERMORE, CALIFORNIA	LV	37°43'30"N	121°45'12"W	FIXED MONOPOLES W/ GONIOMETER (WIDE APERATURE)
POWDER SPRINGS, GEORGIA	PS	33°51'44"N	84°43'26"W	FIXED MONOPOLES W/ GONIOMETER (WIDE APERATURE)
SABANA SECA, PUERTO RICO	SS	18°27'23"N	66°13'37"W	FIXED MONOPOLES W/ GONIOMETER (WIDE APERATURE)
HONOLULU, HAWAII	WP	21°22'45"N	157°59'54"W	FIXED MONOPOLES W/ GONIOMETER (WIDE APERATURE)
FT. SMITH, ALBERTA CANADA	FS	59°52'00"N	111°54'00"W	BANDWIDTH MEASUREMENT ONLY
LANGLEY, B.C. CANADA	LA	49°04'23"N	122°41'08"W	BANDWIDTH MEASUREMENT ONLY
ST. REMI, QUEBEC, CANADA	SR	45°17'03"N	73°39'50"W	BANDWIDTH MEASUREMENT ONLY
BOCKHACKEN, FED. REP. OF GERMANY	BK	51°06'00"N	07°16'00"E	ADCOCK ANTENNA
BERLIN, FED. REP. OF GERMANY	BL	52°34'00"N	13°18'00"E	ADCOCK ANTENNA
DARMSTADT, FED. REP. OF GERMANY	DT	49°51'00"N	08°40'00"E	ADCOCK ANTENNA
MUNCHEN, FED. REP. OF GERMANY	MU	48°10'00"N	11°28'00"E	ADCOCK ANTENNA
ITZHOE, FED. REP. OF GERMANY	IT	53°54'00"N	09°31'00"E	ADCOCK ANTENNA
KONSTANZ, FED. REP. OF GERMANY	KO	47°41'00"N	09°12'00"E	ADCOCK ANTENNA
KREFELD, FED. REP. OF GERMANY	KR	51°26'00"N	06°28'00"E	ADCOCK ANTENNA
NORWAY, STATION 0	NO	58°48'48"N	05°40'09"E	ADCOCK ANTENNA
NORWAY, STATION 1	N1	66°10'48"N	12°33'33"E	ADCOCK ANTENNA
NORWAY, STATION 2	N2	69°16'34"N	16°08'40"E	ADCOCK ANTENNA
NORWAY, STATION 3	N3	71°04'34"N	24°06'58"E	ADCOCK ANTENNA
ENKOPING, SWEDEN	EN	59°35'00"N	17°08'00"E	ADCOCK ANTENNA
CROWSELY PARK, U.K.	U1	51°30'55"N	00°57'13"W	BANDWIDTH MEASUREMENTS ONLY
BALDOCK, U.K.	U2	52°00'00"N	00°08'00"E	FIXED MONOPOLES W/ GONIOMETER (WIDE APERATURE)
ROME, ITALY	RO	41°52'00"N	12°27'00"E	ADCOCK ANTENNA
TOKYO, JAPAN	TO	35°33'54"N	140°24'47"E	LOG PERIODIC ANTENNA
SEOUL, S. KOREA	SO	37°29'00"N	127°07'00"E	LOG PERIODIC ANTENNA
PUSAN, S. KOREA	BU	35°12'00"N	128°58'00"E	LOG PERIODIC ANTENNA
KWANGJU, S. KOREA	GW	35°01'00"N	126°48'00"E	LOG PERIODIC ANTENNA
KANGNUNG, S. KOREA	GN	37°44'00"N	128°55'00"E	LOG PERIODIC ANTENNA

to follow. Table 2 is a copy of the schedule followed during the first week of the July 1988 monitoring period. The IFRB assigned distinct frequency bands from those allocated to the HF broadcasting services to be monitored each week of the 3 week monitoring period. Specific frequencies were chosen within each of these bands for monitoring at the beginning of each half-hour time block. These frequencies were chosen from a list of probable jammed frequencies supplied to ITS by the broadcast organizations whose services were subjected to jamming.

The stations listed in Table 1 that are equipped with direction-finding systems (i.e., Wullenweber arrays or Adcock systems\*) recorded the bearing of the signals that caused harmful interference to the broadcast services. In addition to the bearing information, the monitoring stations collected information on bandwidth, time of day, and frequency of the signal being jammed. The two-character Morse code identifier characteristic of jamming of Western broadcasts by Soviet and Eastern Bloc countries was also recorded for those signals so identified. Table 3 illustrates an example of the information that was obtained.

During the July 1988 monitoring program an entirely new set of markers, different from those recorded in previous monitoring periods, was observed accompanying the jamming emissions. Because of the change in the markers used to identify the sources of interference, we had to verify the assumptions that were made in previous monitoring reports. In the report by Sowers et al. (1985), we described a geolocation algorithm that allowed us to identify a unique location for each marker based upon the assumption that each marker was transmitted from only one location. We verified that this assumption was still valid by examining the histograms of several markers recorded at each monitoring station such as discussed by Sowers et al. (1985).

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\* Certain commercial equipment, instruments, or materials are identified in this paper to specify adequately the experimental procedure. In no case does such identification imply recommendation or endorsement by the National Telecommunications and Information Administration, nor does it imply that the material or equipment identified is necessarily the best available for the purpose.

Table 2. Monitoring Schedule for July 1988

TIME BLOCK#	TIME PERIOD	Mon Jul 4	Tue Jul 5	Wed Jul 6	Thu Jul 7	Fri Jul 8	Sat Jul 9	Sun Jul 10
1	0000-0029	5955	11725	6180	11770	11825	6135	11855
2	0030-0059	11875	6155	11885	6035	11780	11935	11970
3	0100-0129	6035	11780	11915	11855	6050	11875	6180
4	0130-0159	11825	11935	11970	11885	5985	6170	11725
5	0200-0229	5955	11770	6150	6170	11875	11915	6135
6	0230-0259	11770	5975	11705	11855	11935	6135	11725
7	0300-0329	11935	6170	5995	11960	11705	6060	5955
8	0330-0359	11875	11885	6060	11970	11770	5985	11905
9	0400-0429	6125	6125	11770	5955	5965	11875	11970
10	0430-0459	5955	11875	6115	11960	11825	11915	11705
11	0500-0529	11805	5955	11805	11855	5965	6115	11895
12	0530-0559	5955	11805	6090	6125	6115	11940	11915
13	0600-0629	11855	11885	11745	11970	11935	5975	6115
14	0630-0659	6115	5995	11935	11885	11940	11855	11935
15	0700-0729	11855	11725	5995	11855	11885	11940	6105
16	0730-0759	11885	11745	11940	11840	11775	11855	11970
17	0800-0829	11895	11875	11970	11885	11970	11970	11815
18	0830-0859	11875	6105	11885	5995	11875	11940	6105
19	0900-0929	6105	11770	11705	11875	11885	11770	11970
20	0930-0959	11770	5995	11875	11885	6105	11970	6105
21	1000-1029	11855	6105	11770	11895	11705	11875	11885
22	1030-1059	11970	11885	5995	11875	6105	11960	11875
23	1100-1129	11875	6105	11885	11970	11770	11770	6105
24	1130-1159	5995	11970	11875	6105	11885	11970	11895
25	1200-1229	11740	5985	11740	11835	5995	11875	11885
26	1230-1259	11770	11885	11875	11885	11970	6105	11970
27	1300-1329	6105	11740	6105	11960	11770	11875	11885
28	1330-1359	11875	11855	11960	5995	11705	11970	11815
29	1400-1429	11855	11885	11970	6105	11825	11705	11875
30	1430-1459	11970	11705	11855	11825	11855	11875	11825
31	1500-1529	11970	11855	11960	11885	11905	11885	11705
32	1530-1559	11875	11915	11825	11905	11875	11825	6105
33	1600-1629	11970	6105	11905	11915	6035	11945	11885
34	1630-1659	11835	11835	6105	11825	11915	6105	11970
35	1700-1729	11875	6105	11875	5970	11855	11825	11905
36	1730-1759	11915	11705	11915	11885	6105	6105	11970
37	1800-1829	11905	5995	6015	11905	11935	11970	11855
38	1830-1859	5955	11740	11885	6115	11740	11875	6105
39	1900-1929	11935	6015	11970	11750	11970	11960	11705
40	1930-1959	11875	11935	6105	5955	11705	11970	5955
41	2000-2029	6170	11885	6115	11845	6015	11790	11875
42	2030-2059	5955	6160	11750	6115	11855	11970	11825
43	2100-2129	11750	11885	5955	6170	11875	11970	6015
44	2130-2159	11935	11875	11960	11825	6160	6115	6160
45	2200-2229	5955	5995	6170	11770	11885	11895	11885
46	2230-2259	11875	6050	11770	6035	11970	11815	11875
47	2300-2329	6115	11725	6105	11885	11725	6180	11825
48	2330-2359	11970	6155	11855	6155	11825	11935	11875

\* Time is in universal time; frequency is in kilohertz

Table 2. Monitoring Schedule for July 1988 (cont.)

TIME BLOCK#	TIME PERIOD	Mon Jul11	Tue Jul12	Wed Jul13	Thu Jul14	Fri Jul15	Sat Jul16	Sun Jul17
1	0000-0029	7165	7155	15370	7295	15340	7180	15355
2	0030-0059	7255	15445	7105	7115	7220	15130	7190
3	0100-0129	7105	7180	7145	15355	7295	15340	7220
4	0130-0159	15105	7165	15370	7190	15130	7255	15445
5	0200-0229	15340	15370	15130	7105	7155	15445	7190
6	0230-0259	7295	7180	7145	7220	15105	7190	15355
7	0300-0329	15290	15370	7295	7130	7245	15340	7190
8	0330-0359	7285	15275	7225	7210	15115	7210	15445
9	0400-0429	15380	7225	15340	7245	15255	15200	15290
10	0430-0459	15425	15355	15105	15370	15115	7155	15130
11	0500-0529	15380	15290	15445	7255	7255	7245	15115
12	0530-0559	15370	7155	7240	7220	15170	15255	7220
13	0600-0629	15170	15380	15105	7240	15115	7130	15105
14	0630-0659	7220	7130	7165	15370	15340	15445	21510
15	0700-0729	7190	15340	15445	15130	7130	15290	15445
16	0730-0759	15115	15255	7220	21455	15170	21510	21720
17	0800-0829	15185	15370	21650	21745	7240	15105	7240
18	0830-0859	15105	15205	15380	21680	15380	15205	21530
19	0900-0929	21455	15130	15415	15340	21720	21530	15425
20	0930-0959	15445	21530	15340	15105	15380	15370	21745
21	1000-1029	15105	21735	21745	15170	7220	15105	7130
22	1030-1059	15255	7240	15290	21510	15425	21500	15130
23	1100-1129	7220	15445	21455	15370	21510	21745	15105
24	1130-1159	15340	15290	7130	21735	15255	15105	7220
25	1200-1229	15150	15370	21720	15170	21500	15380	15435
26	1230-1259	15215	15150	15290	15105	15130	21530	21745
27	1300-1329	15115	15240	15255	15340	15445	15380	15335
28	1330-1359	15170	15415	15290	21520	15370	15435	7255
29	1400-1429	21500	15290	15335	7255	15435	21720	15370
30	1430-1459	15130	15115	21610	15255	7220	15435	21510
31	1500-1529	15405	15200	21610	21610	15435	21745	21735
32	1530-1559	15370	7255	15130	15380	15245	7220	15105
33	1600-1629	15255	15335	15415	15415	15425	15115	21500
34	1630-1659	15290	7220	15130	15405	7130	7280	15225
35	1700-1729	21455	15115	15380	15170	15405	21720	21745
36	1730-1759	15305	7215	7205	15340	15240	15290	15255
37	1800-1829	15245	15290	15305	21720	21500	15170	7130
38	1830-1859	15370	7225	15115	7220	15340	15380	21455
39	1900-1929	7215	7130	15130	7205	15370	15290	15255
40	1930-1959	21720	15115	15380	15340	7295	15245	15340
41	2000-2029	7245	7220	15425	15255	7225	15340	15225
42	2030-2059	21745	15170	7235	15305	15415	7235	15115
43	2100-2129	7235	15255	15115	15380	15340	7255	7220
44	2130-2159	15245	15130	7245	7295	15380	15370	15170
45	2200-2229	15130	7225	15255	15370	7165	7255	15340
46	2230-2259	15415	7220	7295	7245	15380	15170	15130
47	2300-2329	15255	15170	7155	15355	7190	7295	7220
48	2330-2359	7245	7115	15130	7165	15370	15370	7255

\* Time is in universal time; frequency is in kilohertz

Table 2. Monitoring Schedule for July 1988 (cont.)

TIME BLOCK#	TIME PERIOD	Mon Jul18	Tue Jul19	Wed Jul20	Thu Jul21	Fri Jul22	Sat Jul23	Sun Jul24
1	0000-0029	9750	9505	9725	9555	9690	9630	9645
2	0030-0059	9625	9705	9520	9680	9635	9660	9690
3	0100-0129	9520	9625	9680	9540	9630	9770	9645
4	0130-0159	9725	9660	9645	9520	9705	9555	9750
5	0200-0229	9520	9505	9540	9660	9555	9625	9680
6	0230-0259	9705	9625	9540	17830	9740	9630	9750
7	0300-0329	9615	9630	9625	9660	9690	9725	9520
8	0330-0359	9680	9690	9650	9505	9660	9555	9625
9	0400-0429	9660	9725	17895	9540	9555	17760	9705
10	0430-0459	17710	9625	9555	9505	9595	9520	9680
11	0500-0529	9625	17895	9745	17735	9600	17770	9725
12	0530-0559	9715	9660	9745	9555	17760	9520	17725
13	0600-0629	9680	17725	9595	17750	9520	17760	17770
14	0630-0659	17735	9725	17835	9660	17895	9695	17750
15	0700-0729	9680	17612	9520	17760	9660	17770	17770
16	0730-0759	17725	9595	17895	17835	17750	17835	17895
17	0800-0829	17760	17825	9595	17770	9725	17750	17825
18	0830-0859	17612	9520	17895	17875	17875	17835	17725
19	0900-0929	17710	9685	17612	17835	17710	17760	9615
20	0930-0959	17750	17725	17895	9725	17735	9520	17725
21	1000-1029	17895	17835	9725	17612	9725	17725	9520
22	1030-1059	17760	9520	17750	17760	17725	9615	17835
23	1100-1129	9520	17725	17612	17750	9725	17760	9725
24	1130-1159	9615	17895	9685	17750	17835	17750	17725
25	1200-1229	9695	17695	17835	9520	17735	17612	9595
26	1230-1259	17725	9725	9695	17750	17760	17895	17725
27	1300-1329	9615	9695	17725	17895	17750	9725	17895
28	1330-1359	9520	9605	17735	17760	17835	17710	17770
29	1400-1429	17725	17760	9725	17750	9520	17710	17875
30	1430-1459	17895	9595	17750	17835	17760	17875	17725
31	1500-1529	17795	17795	9505	17875	17795	9715	9715
32	1530-1559	17760	9715	17835	9520	9725	17725	17770
33	1600-1629	9725	17885	17780	17795	9680	17835	17885
34	1630-1659	17895	17725	9505	17760	9715	9520	9565
35	1700-1729	9715	17760	17750	17795	17835	9715	17895
36	1730-1759	17770	9725	9565	17710	9520	17885	17725
37	1800-1829	9670	17795	9690	9715	9505	17725	9725
38	1830-1859	17750	9565	9690	17760	9740	17835	17865
39	1900-1929	9520	17740	17710	9725	17885	9740	17760
40	1930-1959	17770	9505	17865	17835	17750	9715	17895
41	2000-2029	9530	9740	9520	17725	17770	9505	17725
42	2030-2059	9605	17835	17895	9650	9565	17865	17885
43	2100-2129	9740	9605	17725	17710	17740	9530	17895
44	2130-2159	17835	9725	9505	9565	9750	17885	9520
45	2200-2229	9740	17710	9660	17895	9680	9595	9555
46	2230-2259	9505	9725	9750	9520	9525	9565	9660
47	2300-2329	9750	9595	9520	9525	9660	9680	9705
48	2330-2359	9555	9505	9630	9725	9520	9625	9680

\* Time is in universal time; frequency is in kilohertz

Table 3. Example of Monitoring Data Obtained during the July 1988 Monitoring Period

Monitoring Station	Date	Time (UTC)	Frequency (kHz)	Class of Emission	Identification	Class of Station	Signal Strength	Bearing	Class of Bearing	Frequency	Language	Broadcast Administration	Antenna Identification	Broadcast Interfered
BK	0704888	0301	11935	AXX	FR		65	068	B	11935=RUSS/RL	HA		250	
LV	0704888	0317	11935	AXX	NU		S3	319	C	11936=RUSS/RL	HA		250	
AN	0704888	0317	11935	AXX	NU		S3	293	B	11936=RUSS/RL	HA		250	
AL	0704888	0310	11935	AXX	VL		S2	029	B	11934=RUSS/RL	HA		250	
VB	0704888	0310	11935	AXX	VL		S2	034	C	11934=RUSS/RL	HA		250	
PS	0704888	0349	11970	AXX	A5		S2	045	C	11968=BULG/RFE	G14		250	
LR	0704888	0349	11970	AXX	A5		S2	046	C	11968=BULG/RFE	G14		250	
VB	0704888	0349	11970	AXX	A5		S2	043	B	11968=BULG/RFE	G14		250	
BK	0704888	0316	11970	AXX	ZT		70		D	11970=BULG/RFE	G14		250	
BK	0704888	0355	11970	AXX	ZT		60		D	11970=BULG/RFE	G14		250	
NO	0704888	0431	5955	AXX	LK	10E		88	C	5955=LITH/RFE	HD		250	
N1	0704888	0431	5955	AXX	LK	10E		150	C	5955=LITH/RFE	HD		250	
BD	0704888	0431	5955	AXX	LK		50	065	B	5955=LITH/RFE	HD		250	
BK	0704888	0431	5955	AXX	LK		60		D	5955=LITH/RFE	HD		250	
N1	0704888	0431	5955	AXX	MX	10E		150	C	5955=LITH/RFE	HD		250	
NO	0704888	0431	5955	AXX	MX	10E		88	C	5955=LITH/RFE	HD		250	
BD	0704888	0431	5955	AXX	U7		50	092	B	5955=LITH/RFE	HD		250	
BK	0704888	0401	6115	AXX	U7		70	085	B	6115=CZEC/RFE	B3		100	
PS	0704888	0441	11825	AXX	A5		S3	045	B	11826=BULG/RFE	G10		50	
VB	0704888	0441	11825	AXX	A5		S3	046	B	11826=BULG/RFE	G10		50	
SS	0704888	0441	11825	AXX	A5		S3	049	D	11826=BULG/RFE	G10		50	
LR	0704888	0441	11825	AXX	A5		S3	047	C	11826=BULG/RFE	G10		50	
LV	0704888	0414	11885	AXX	LU	4	S3	319	C	11886=UKR/RL	P5		250	
FE	0704888	0414	11885	AXX	LU	4	S3	307	A	11886=UKR/RL	P5		250	
AN	0704888	0414	11885	AXX	LU	4	S3	277	B	11886=UKR/RL	P5		250	
HL	0704888	0414	11885	AXX	LU	4	S3	310	C	11886=UKR/RL	P5		250	
LV	0704888	0413	11885	AXX	RA		S3	315	C	11886=UKR/RL	P5		250	
HL	0704888	0413	11885	AXX	RA		S3	311	B	11886=UKR/RL	P5		250	
LV	0704888	0446	11935	AXX	ML		S2	322	C	11934=RUSS/RL	HA		250	
HL	0704888	0446	11935	AXX	ML		S2	311	B	11934=RUSS/RL	HA		250	
KI	0704888	0445	11975	AXX	A5		S3	036	C	11976=????				
BE	0704888	0445	11975	AXX	A5		S3	051	B	11976=????				
AL	0704888	0445	11975	AXX	A5		S3	042	B	11976=????				
CA	0704888	0445	11975	AXX	A5		S3	050	C	11976=????				
LR	0704888	0445	11975	AXX	A5		S3	047	C	11976=????				
VB	0704888	0445	11975	AXX	A5		S3	046	B	11976=????				
PS	0704888	0445	11975	AXX	A5		S3	045	B	11976=????				
SS	0704888	0445	11975	AXX	A5		S3	049	D	11976=????				
BK	0704888	0531	5955	AXX	BK		65	084	B	5955=RUSS/RL	HD		250	
N1	0704888	0531	5955	AXX	LK	10E		150	C	5955=RUSS/RL	HD		250	
NO	0704888	0531	5955	AXX	LK	10E		90	C	5955=RUSS/RL	HD		250	
BD	0704888	0531	5955	AXX	LK		40	065	B	5955=RUSS/RL	HD		250	
BD	0704888	0531	5955	AXX	U7		40	098	B	5955=RUSS/RL	HD		250	
BK	0704888	0510	11780	AXX	77		35	097	A	11780=????				
LR	0704888	0511	11855	AXX	B1		S3	045	C	11856=CZEC/RFE	G3B		250	
LV	0704888	0543	11885	AXX	DU		S2	313	C	11884=UKR/RL	P5		250	
HL	0704888	0543	11885	AXX	DU		S2	313	B	11884=UKR/RL	P5		250	
LV	0704888	0501	11935	AXX	BF		S2	322	C	11937=RUSS/RL	HA		250	
DS	0704888	0501	11935	AXX	BF		S2	325	B	11937=RUSS/RL	HA		250	
FE	0704888	0501	11935	AXX	BF		S2	313	A	11937=RUSS/RL	HA		250	

An example of histograms on the markers RA, BF, and KV observed at stations in Anchorage, Alaska (RA, BF); Sabana Seca, Puerto Rico (KV); and Bockhacken, Germany (KV) are shown in Figure 1. These histograms show the number of instances that a particular bearing from a jammer was observed at a monitoring station. In this figure, all three markers display features in their histogram which indicate that there is only one location that is the source of transmission for each marker. These histograms (as well as most of the others examined) show a distinct mode in the bearings with a small deviation in the distribution indicating that each marker was transmitted from one location.

Once the assumption that a given marker was emitted from a unique location was verified, we were able to initiate the geolocation procedures described in Sowers et al. (1985) to locate the sources of harmful interference. The geolocation procedures rely upon a computer algorithm, FFIX, (Sowers et al. 1985) that utilizes the bearings from three or more monitoring stations to locate the emitter at a point termed the best point estimate or BPE. Because the algorithm treats the data in a statistical manner, an error ellipse or confidence ellipse is associated with the BPE. As described in Sowers et al. (1985), we identify an initial estimate of the location of the jammers for each individual marker observed during a single time block. These results are listed in Appendix A along with the targeted language and broadcaster associated with each individual frequency. Combining the data from different time blocks for one marker as described in the earlier report yields more accurate locations of the jammers. The combined locations (or composite locations) of the jammers are presented in Appendix B.

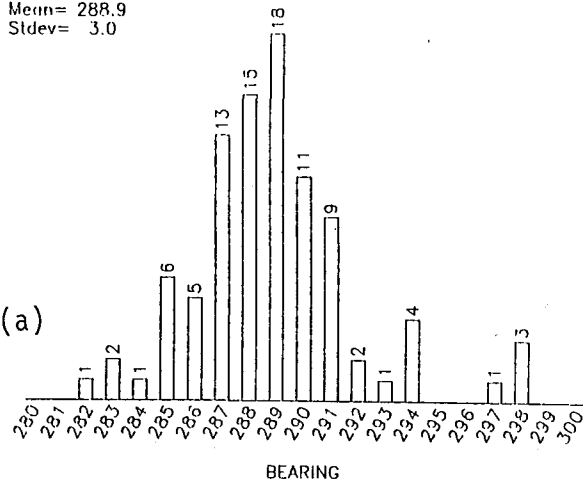
### 3. MONITORING CAMPAIGN RESULTS

This section compares changes in the identification markers and jammer locations with those observed in previous monitoring campaigns. Statistics on the broadcasters and languages affected by harmful interference during the July 1988 monitoring program are also presented.



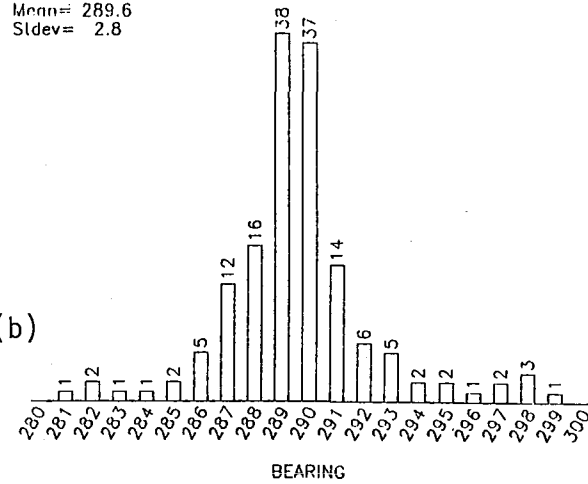
Median= 289  
Mean= 288.9  
Stdev= 3.0

(a)



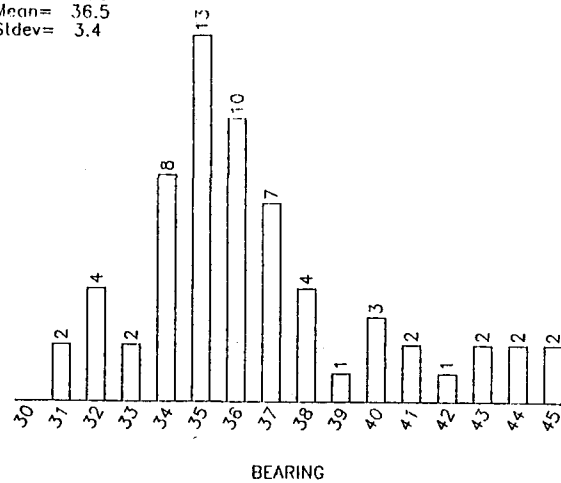
Median= 289  
Mean= 289.6  
Stdev= 2.8

(b)



Median= 36  
Mean= 36.5  
Stdev= 3.4

(c)



Median= 74  
Mean= 73.9  
Stdev= 2.8

(d)

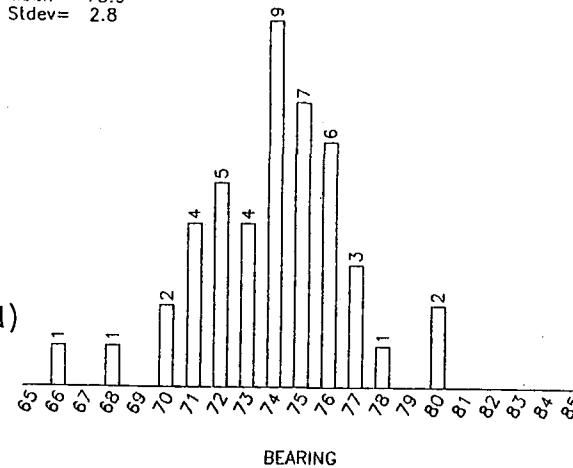


Figure 1. Histograms showing the numbers of bearings recorded at Anchorage, Alaska on Markers RA (a), and BF (b) and histograms of bearings on marker KV at (c) Sabana Seca, Puerto Rico, and (d) Bockhaken, Federal Republic of Germany.

### 3.1. General Results

The locations of the emitters of harmful interference that were observed during the July 1988 monitoring campaign are illustrated in Figures 2 and 3. In these figures, the alphanumeric marker associated with the jamming observations is centered on the best point estimate of the emitter. A comparison of these figures to those in previous reports will show that although the markers used to identify the jamming sources are quite different from those observed during previous monitoring periods, the general locations of the jammers have not changed drastically.

Most of the emitters shown in Figures 2 and 3 are located in the Soviet Union and Eastern Bloc countries. The majority of the markers tend to group in the Western portion of the Soviet Union with a large grouping of markers around Moscow (55.8 N, 37.7 E) and Leningrad (59.9 N, 30.4 E) and a few in the Ukrainian and Lithuanian regions. However, there appear to be fewer markers located in the Ukrainian and Lithuanian regions than noticed in previous monitoring programs. There are also several markers in the southern Soviet Socialist Republics of Kazakh and Uzbek.

Previous monitoring reports (Sowers et al., 1987) show that many jammers identified with letter-number markers were located in the Soviet Union and were identified as jamming Polish language broadcasts. These jammers are no longer present and do not appear in Figure 2. An inspection of Appendix A shows that most of the jammers in the Soviet Union were targeted primarily against Russian and Russian dialect broadcasts, with the exception of a few Czechoslovakian (NK, ZT) and Bulgarian (GF) language jammers.

In addition to the Soviet markers, there are groupings of markers located in Czechoslovakia (S5, R9, U7, B1) and Bulgaria (A5, L4, G3) seen in Figure 2. These Eastern Bloc markers did not appear to change from those observed during the June 1986 monitoring program (Sowers et al., 1987) in either location or targeted languages. As seen in Figure 3, another group of markers is located in the eastern portion of the Soviet Union near the cities of Khabarovsk (48.5 N, 135.1 E) and Komsomolsk (51 N, 137.0 E). Two other jammers were located in the Soviet far east further north of Khabarovsk near the city of Magadan (60.0 N, 151.0 E) and another on the Kamchatka Peninsula.

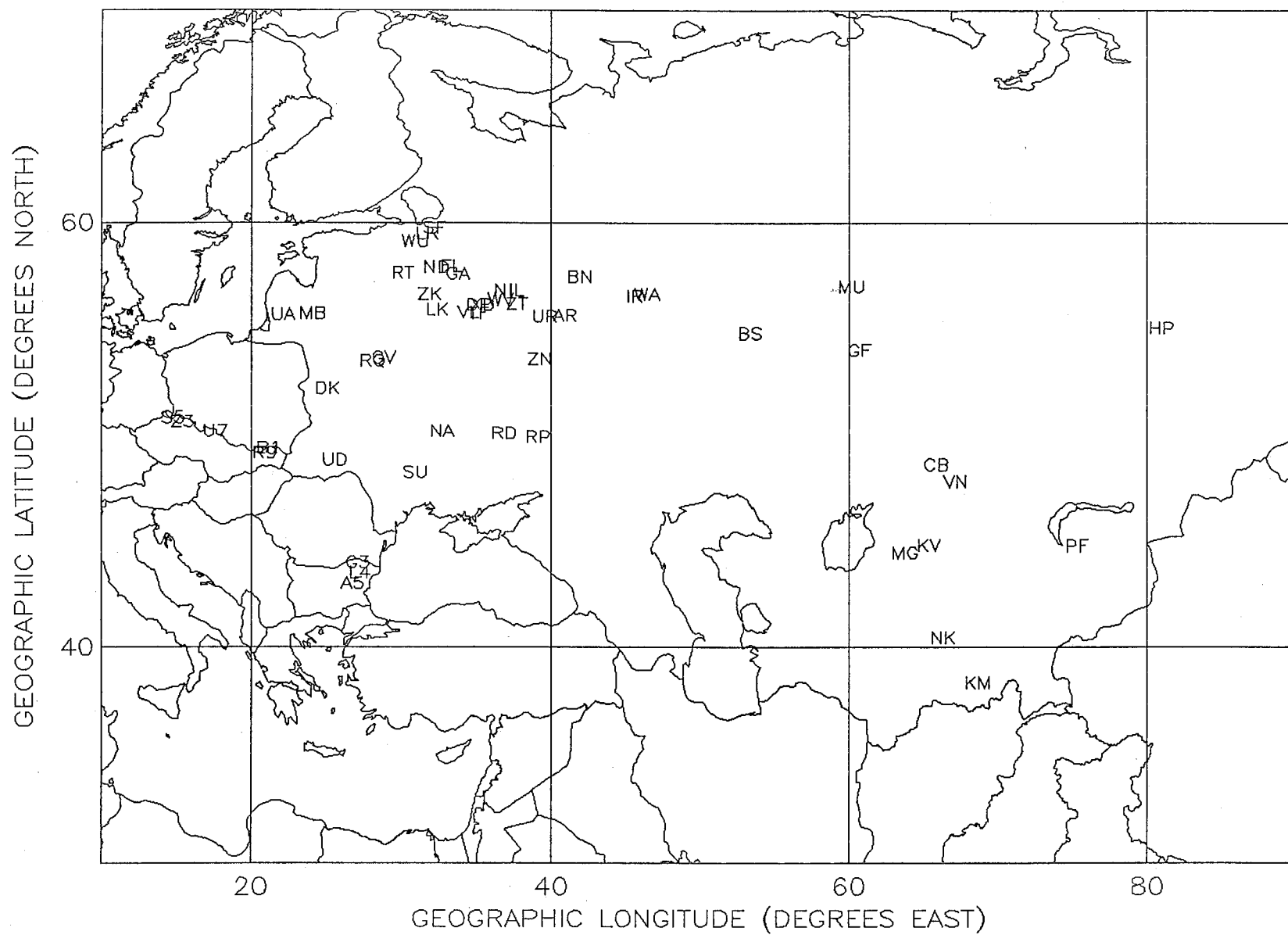


Figure 2. Locations of emitters of harmful interference indicated by Marker ID, in Eastern Europe and the Soviet Union during July 1988.

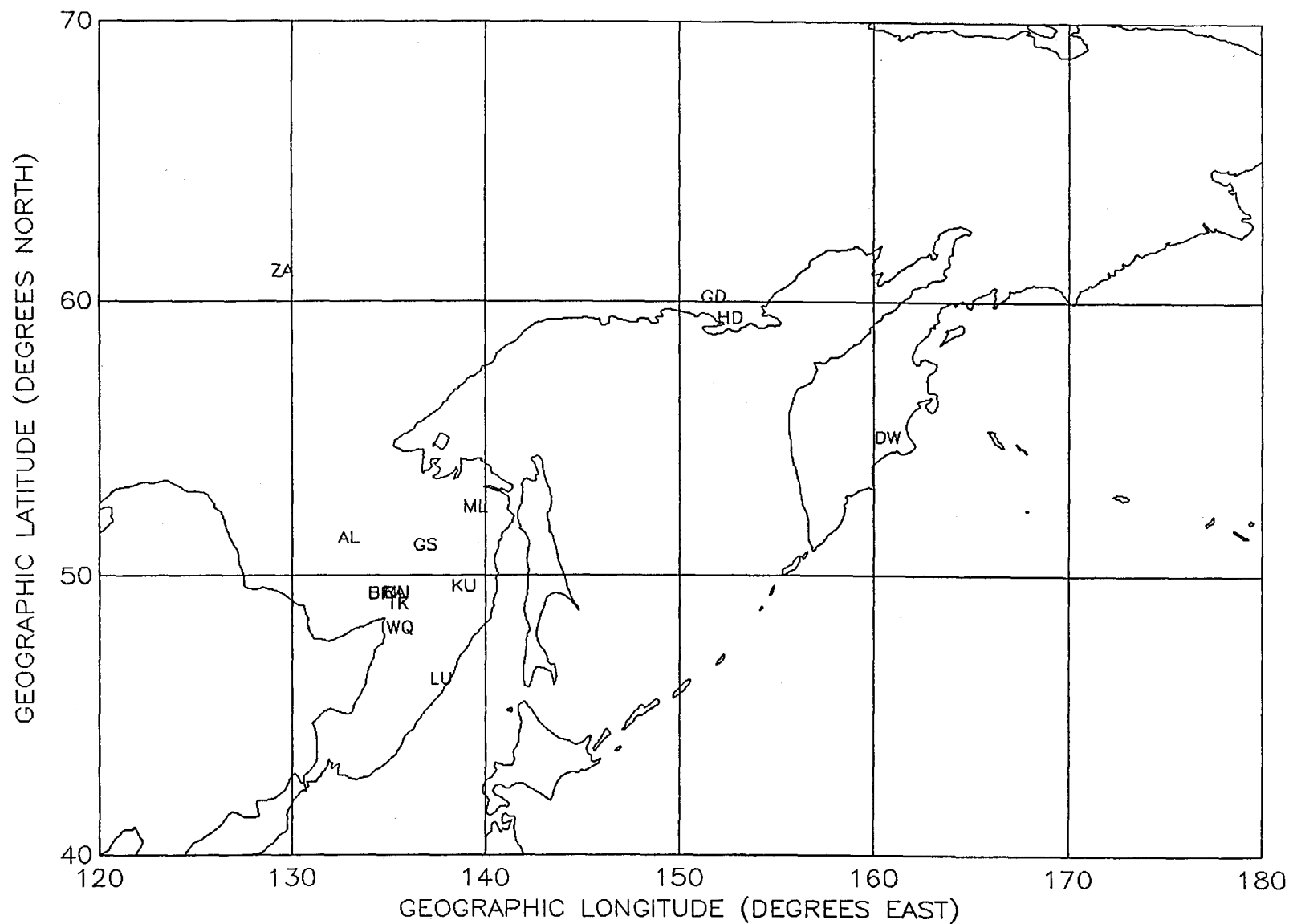


Figure 3. Locations of emitters of harmful interference indicated by Marker ID, in the Eastern Soviet Union and China during July 1988.

The markers shown in Figures 2 and 3 are associated with confidence ellipses, which give an indication of the amount of uncertainty in the BPE. The confidence ellipses are given in Appendixes A and B and a few are illustrated in Figure 4. This figure illustrates the BPE in the center of the 90 percent confidence region for the markers SF, FL, RT, and RD. The markers shown in Figures 2 and 3 illustrate only the markers from Appendix B that were located within a reasonable degree of accuracy (800 x 200 nautical miles) as described in Sowers et al. (1985). Table 4 provides a list of the BPE of the locations of each marker shown in Figures 2 and 3 along with the appropriate ITU country code symbol for the country in which each marker is located.

The changes in the markers used to identify the sources of jamming make comparisons to the previous monitoring periods more difficult; however, it is still interesting to note that 61 of the 69 jammers observed (88 percent) were located in the Soviet Union. In the previous four monitoring periods, the percent of jammers located in the Soviet Union ranged from 74 percent in October 1984, to 82 percent in June 1986. Fewer numbers of jammers, however, were located in the Soviet Union, 61 in July 1988 compared to 81 in June 1986. Roughly the same number of jammers were located in Czechoslovakia and Bulgaria as were observed before.

### 3.2. Statistical Results

Table 5 provides a listing of all the markers (jammer identifications) that were observed during July 1988. Only observations made for the specific times and frequency bands given by the IFRB monitoring schedule are included in the listing. The markers included in this table were observed at least five times during the monitoring period. The numbers given beside the markers denote the number of observations; the two asterisks indicate that harmful interference was observed on frequencies for which no marker was present or the marker could not be identified. During the July 1988 monitoring period, 152 unique markers associated with jamming were observed on at least five different occasions during the course of the monitoring. This is slightly less than the 157 observed eight times or more during the June 1986 monitoring. Of the 152 markers, 69 were geolocated with reasonable accuracy and are listed in Table 4 with their locations. It can be

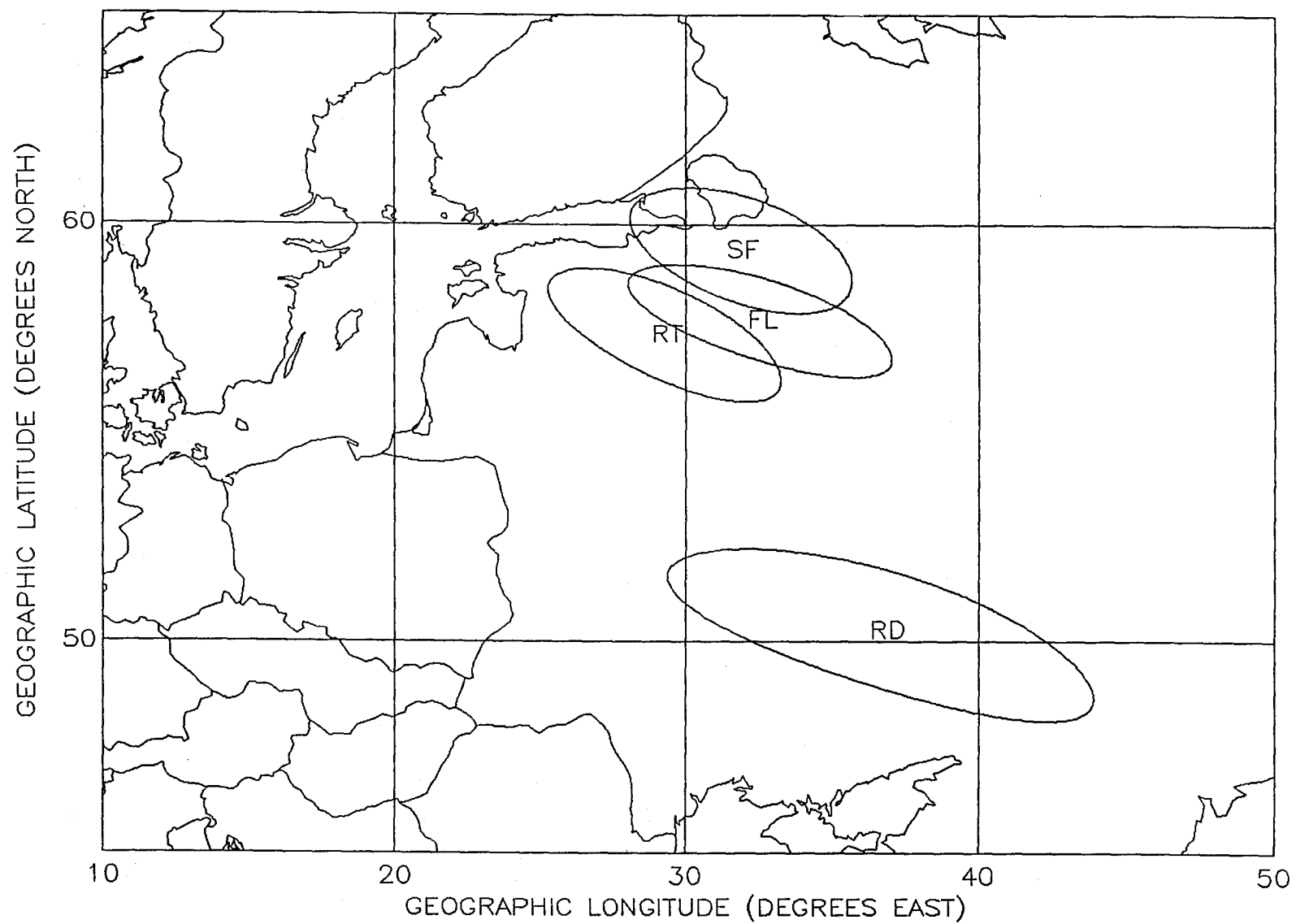


Figure 4. Example of the locations of select jammer emitters and associated confidence ellipses for July 1988.

Table 4. Locations of Emitters of Harmful Interference

Location						ITU Country Code	Location						ITU Country Code
Marker							Marker						
42	44N	26	2E	A5		BUL	56	47N	59	13E	MU		URS
51	11N	132	23E	AL		URS	69	13N	29	41E	MX		URS
55	25N	40	8E	AR		URS	50	47N	31	21E	NA		URS
49	10N	20	20E	B1		TCH	57	40N	31	28E	ND		URS
49	10N	133	55E	BF		URS	56	36N	36	10E	NI		URS
57	14N	41	01E	BN		URS	40	12N	65	24E	NK		URS
56	46N	49	52E	BS		URS	49	11N	134	45E	NU		URS
48	22N	64	59E	CB		URS	44	31N	74	30E	PF		URS
51	59N	24	14E	DK		URS	48	55N	20	03E	R9		TCH
55	55N	34	18E	DP		URS	49	12N	134	40E	RA		URS
54	53N	159	59E	DW		URS	50	17N	36	52E	RD		URS
58	41N	61	11E	FG		URS	49	38N	40	26E	RP		URS
58	14N	29	40E	FI		URS	53	17N	27	14E	RQ		URS
55	04N	28	52E	FL		URS	57	24N	29	21E	RT		URS
43	44N	26	18E	G3		BUL	50	37N	13	58E	S5		TCH
57	22N	32	59E	GA		URS	59	24N	31	57E	SF		URS
59	58N	151	6E	GD		URS	47	60N	30	06E	SU		URS
53	48N	59	53E	GF		URS	55	32N	34	27E	TF		URS
58	08N	23	42E	GL		URS	48	48N	134	55E	TK		URS
50	54N	136	17E	GS		URS	56	08N	33	53E	TU		URS
46	52N	37	30E	GU		URS	49	58N	16	46E	U7		TCH
53	26N	28	3E	GV		URS	55	28N	21	17E	UA		URS
59	13N	151	56E	HD		URS	48	36N	24	42E	UD		URS
54	50N	80	2E	HP		URS	55	23N	38	40E	UR		URS
56	36N	37	9E	IL		URS	55	34N	33	46E	VL		URS
56	20N	45	01E	IR		URS	63	56N	91	47E	VN		URS
38	06N	67	41E	KM		URS	55	07N	46	42E	WA		URS
49	25N	138	13E	KU		URS	47	56N	134	53E	WO		URS
44	32N	64	33E	KV		URS	59	00N	30	07E	WU		URS
43	15N	26	30E	L4		BUL	56	10N	35	45E	WV		URS
55	43N	31	37E	LK		URS	55	20N	34	21E	XD		URS
59	15N	30	58E	LR		URS	50	45N	14	49E	Z3		TCH
46	6N	137	7E	LU		URS	60	52N	128	53E	ZA		URS
49	16N	20	09E	M3		URS	56	25N	31	05E	ZK		URS
55	31N	23	29E	MB		URS	53	23N	38	22E	ZN		URS
44	11N	62	50E	MG		URS	55	59N	36	56E	ZT		URS
52	18N	138	52E	ML		URS							

\* ITU Country codes: URS - Soviet Union, TCH - Czechoslovakia  
BUL - Bulgaria.

Table 5. Jammer Identification Markers Observed during the July 1988 Monitoring Period, Sorted Alphabetically (a) and Numerically (b)

152

(a)

\*\* 77 A5 AB AG AL AM AN AR AU AV AW B1 BA BD BF BL BM BN BR BS BT CA CB D3 DA DF DK DM DN DP DU DW FG FI FL FR FT FU G3 G7 GA GD GF GL GM GR GS GU GV GW HA HD HM HP IL IN IR K7 KB KD KF KL KM KR KT KU KV L4 L8 LD LF LG LK LM LR LU LV M3 M7 MA MB MG ML MR MS MU MW MX N9 NA ND NI NJ NK NS NU PF PK PL PM R6 R9 RA RD RP RQ RS RT S5 SB SF SG SK SM SU TF TK TR TU U7 UA UB UD UN UR VA VI VK VL VM VN VR VU WA WG WK WQ WR WU WV XD XI XN XW Z1 Z3 ZA ZK ZM ZN ZT

2408:\*\*

28:77

109:A5

12:AB

81:AG

60:AL

35:AM

14:AN

1195:AR

11:AU

19:AV

14:AW

60:B1

14:BA

24:BD

762:BF

65:BL

16:BM

24:BN

14:BR

60:BS

26:BT

6:CA

103:CB

53:D3

95:DA

7:DF

166:DK

31:DM

5:DN

200:DP

22:DU

54:DW

42:FG

46:FI

55:FL

11:FR

10:FT

19:FU

76:G3

18:G7

146:GA

332:GD

242:GF

30:GL

7:GM

11:GR

87:GS

26:GU

230:GV

22:GW

10:HA

151:HD

27:HM

193:HP

233:IL

16:IN

37:IR

144:K7

90:KB

6:KD

28:KF

13:KL

34:KM

5:KR

6:KT

83:KU

819:KV

240:L4

13:L8

59:LD

440:LF

7:LG

606:LK

63:LM

195:LR

89:LU

7:LV

30:M3

17:M7

18:MA

23:MB

832:MG

98:ML

29:MR

17:MS

249:MU

9:MW

25:MX

10:N9

59:NA

18:ND

209:NI

7:NJ

383:NK

13:NS

338:NU

82:PF

11:PK

170:PL

8:PM

6:R6

390:R9

560:RA

55:RD

40:RP

110:RQ

7:RS

50:RT

84:S5

8:SB

46:SF

19:SG

87:SK

12:SM

454:SU

127:TF

87:TK

20:TR

65:TU

150:U7

236:UA

6:UB

213:UD

12:UN

440:UR

93:VA

27:VI

59:VK

31:VL

119:VM

102:VN

5:VR

5:VU

26:WA

28:WG

63:WK

167:WQ

50:WR

72:WU

134:WV

21:XD

26:X1

80:XN

6:XW

37:Z1

60:Z3

122:ZA

61:ZK

84:ZM

31:ZN

402:ZT

152

(b)

\*\* AR MG KV BF LK RA SU LF UR ZT R9 NK NU GD MU GF L4 UA IL GV UD NI DP LR HP PL WQ DK HD U7 GA K7 WV TF ZA VM RQ A5 CB VN ML DA VA KB LU GS SK TK S5 ZM KU PF AG XN G3 WU BL TU LM WK ZK AL B1 BS Z3 LD NA VK FL RD DW D3 RT WR FI SF FG RP IR Z1 AM KM DM VL ZN GL M3 MR 77 KF WG HM VI BT GU WA XI MX BD BN MB DU GW XD TR AV FU SG G7 MA ND M7 MS BM IN AN AW BA BR KL L8 NS AB SM UN AU FR GR PK FT HA N9 MW PM SB DF GM LG LV NJ RS CA KD KT R6 UB XW DN KR VR VU

2408:\*\*

1195:AR

832:MG

819:KV

762:BF

606:LK

560:RA

454:SU

440:LF

440:UR

402:ZT

390:R9

383:NK

338:NU

332:GD

249:MU

242:GF

240:L4

236:UA

233:IL

230:GV

213:UD

209:NI

200:DP

195:LR

193:HP

170:PL

167:WQ

166:DK

151:HD

150:U7

146:GA

144:K7

134:WV

127:TF

122:ZA

119:VM

110:RQ

109:A5

103:CB

102:VN

98:ML

95:DA

93:VA

90:KB

89:LU

87:GS

87:SK

87:TK

84:S5

84:ZM

83:KU

82:PF

81:AG

80:XN

76:G3

72:WU

65:BL

65:TU

63:LM

63:WK

61:ZK

60:AL

60:B1

60:BS

60:Z3

59:LD

59:NA

59:VK

55:FL

55:RD

54:DW

53:D3

50:RT

50:WR

46:FI

46:SF

42:FG

40:RP

37:IR

37:Z1

35:AM

34:KM

31:DM

31:VL

31:ZN

30:GL

30:M3

29:MR

28:77

28:KF

28:WG

27:HM

27:VI

26:BT

26:GU

26:WA

26:X1

25:MX

24:BD

24:BN

23:MB

22:DU

22:GW

21:XD

20:TR

19:AV

19:FU

19:SG

18:G7

18:MA

18:ND

17:M7

17:MS

16:BM

16:IN

14:AN

14:AW

14:BA

14:BR

13:KL

13:L8

13:NS

12:AB

12:SM

12:UN

11:AU

11:FR

11:GR

11:PK

10:FT

10:HA

10:N9

9:MW

8:PM

8:SB

7:DF

7:GM

7:LG

7:LV

7:NJ

7:RS

6:CA

6:KD

6:KT

6:R6

6:UB

6:XW

5:DN

5:KR

5:VR

5:VU



seen in Table 5 that the number of unidentified observations of harmful interference is about one and a half times greater than the most frequently occurring marker. No geolocation attempts were made to locate the unidentified sources of jamming beyond what is listed in Appendix A.

Table 6 provides an overview of the jamming noticed against each broadcaster. The information in this table provides a breakdown by language for each broadcaster affected by harmful interference. The first column under each broadcaster (labeled 0 - 10) compares the total number of time blocks during which jamming was observed against a scheduled language service to the number of time blocks that the language was included in the specific frequency schedule for examination during the first 10 minutes of the half-hour time block. For example, Radio Liberty (RL) Russian was scheduled for monitoring in 430 different time blocks, all of which were observed to have jamming at one or more monitoring site.

The second column under each broadcaster in Table 6 is labeled 11-29 and indicates the number of time blocks for which jamming was observed on a particular language during the remaining 20 minutes of each time block. Again, jamming was noted against RL Russian services by at least one monitoring site in 935 different time blocks during the three weeks of monitoring. The last column under each broadcaster labeled "Jams" simply lists actual number of observations of jamming at all monitoring stations. The 9660 jams listed under RL Russian in the table are a count of all the jams observed during the 3 weeks of monitoring at all monitoring sites. The totals listed for each broadcaster entry give the statistics for each broadcaster irrespective of language.

The results presented in Table 6 illustrate which of the broadcasters were the primary targets of intentional harmful interference. It can be seen that RL was targeted for harmful interference on all of its Russian and Russian dialect broadcasts. Radio Free Europe continued to be jammed on most Eastern Bloc languages. The RFE Polish services are no longer heavily jammed and were not monitored extensively. The BBC Russian and Eastern Bloc languages were quite heavily jammed in June 1986 (Sowers et al., 1987), but were only jammed irregularly on their Russian and Polish broadcasts during the July 1988 monitoring program. The instances of irregular jamming could be due to jamming of other co-channel or adjacent-channel broadcast opera-

Table 6. Summary of the Specific Broadcasters and Languages That Were Observed to be Jammed during the July 1988 Monitoring Period

BBC British Broadcasting Corporation				DW Deutsche Welle			
	0-10	11-29	Jams		0-10	11-29	Jams
RUSS	5/ 10	15	44	RUSS	41/ 44	139	1089
POLI	1/ 3	2	4	DARI	6/ 9	16	77
Total	6/ 13	17	48	PASH	3/ 3	19	65
				Total	50/ 56	163	1231
VOA Voice of America				IBA KOL Israel			
	0-10	11-29	Jams		0-10	11-29	Jams
PASH	10/ 13	17	53	RUS	43/ 59	78	275
ARAB	18/ 40	13	40	EUR	11/ 22	14	53
DARI	3/ 3	12	19	ARAB	1/ 4	2	3
AMHA	4/ 5	3	18	EEUR	0/ 1	1	1
URDU	4/ 10	3	12	Total	55/ 86	95	332
HIND	4/ 7	1	6				
Total	43/ 78	48	148				
RFE Radio Free Europe				IRN Iran			
	0-10	11-29	Jams		0-10	11-29	Jams
CZEC	92/ 96	277	1366	IRAN	27/ 49	47	180
BULG	27/ 28	142	680	Total	27/ 49	47	180
HUNG	9/ 10	167	317				
LITH	11/ 11	51	217	IRQ Iraq			
EST	7/ 7	47	194		0-10	11-29	Jams
LAT	6/ 6	50	185	IRAQ	2/ 5	0	5
PASH	4/ 4	20	87	Total	2/ 5	0	5
ROMA	2/ 3	35	76				
DARI	4/ 4	14	74				
POLI	2/ 4	17	44				
Total	164/173	580	3240				
RL Radio Liberty				???? Unknown			
	0-10	11-29	Jams		0-10	11-29	Jams
RUSS	430/430	935	9660	????	0/ 0	387	1167
UKR	42/ 42	278	1235	ALB	0/ 0	3	6
KAZA	12/ 12	48	244	Total	0/ 0	390	1173
AZ	11/ 11	65	207				
ARM	9/ 9	48	161				
BR	8/ 8	45	158				
GEOR	7/ 7	43	144				
TB	6/ 6	48	142				
UZBE	7/ 7	41	142				
TAJI	9/ 9	28	126				
TURK	3/ 3	18	62				
KIRG	4/ 4	10	29				
Total	548/548	980	12310				

\* All IBA languages refer to service area, actual languages used are unknown.

\*\* Key to languages:

ALB - ALBANIAN	KIRG - KIRGIZ
AMHA - AMHARIC	LAT - LATVIAN
ARAB - ARABIC	LITH - LITHUANIAN
ARM - ARMENIAN	PASH - PASHTO
AZ - AZERBAIJANIAN	POLI - POLISH
BR - BYELORUSSIAN	ROMA - ROMANIAN
BULG - BULGARIAN	RUSS - RUSSIAN
CZEC - CZECHOSLOVAKIAN	TAJI - TAJIK
DARI - DARI	TB - TATAR BASHKIR
EST - ESTONIAN	TURK - TURKMEN
GEOR - GEORGIAN	UKR - UKRAINIAN
HIND - HINDI	URDU - URDU
HUNG - HUNGARIAN	UZBE - UZBEK
KAZA - KAZAKH	

\*\*\* The totals indicated at the end of columns labelled 11-29 indicate the total number of time blocks jammed irrespective of the number of languages jammed in a given time block.

tions. Jamming was no longer noticed on the VOA Russian and Eastern Bloc languages. Jamming, however, was observed against VOA Arabic and Afghani language broadcasts along with sporadic jamming against VOA Urdu, Hindi, and Amharic language broadcasts. 1089 jams against Deutsche Welle Russian services shows a decrease in jamming from June 1986. DW Eastern Bloc languages are also no longer heavily jammed. The Israel Broadcast Administration (IBA) was jammed on its services into Russia, however, not at the same levels reported in the June 1986 monitoring report.

In the report on the June 1986 monitoring program (Sowers et al., 1986), we discussed the effects of jamming on broadcasts that were not specifically targeted for jamming. These broadcasts were termed "third party" broadcasts for the supposed interference to their services from jamming signals aimed at other broadcasts. In this report we do not address the issue of "third party" jamming because, in the jamming environment of July 1988, there are not a significant number of "third party" broadcasts into the European area operating co-channel or adjacent-channel to known jammed broadcasts.

In order to make an assessment of the amount of jamming targeted against HF broadcasters during the July 1988 monitoring program, we compiled statistics on the numbers of jammer markers used to jam RFE and RL broadcasts. Table 7 presents these statistics for June 1986 and July 1988. Table 7a, in particular, shows the number of markers used against all RFE broadcasts that were included in the schedule of specific frequencies. During June 1986, nearly four (3.63) markers on average were observed targeted against RFE programs. In July 1988 this number was closer to three (3.02). The first column in Table 7 for RFE shows the actual number of markers and the second and third columns show the number of time blocks and (percent) number of time blocks respectively during which a particular number of markers were observed to jam an RFE broadcast. The maximum number of jammers recorded against an RFE broadcast was 9. Columns 4 and 5 show the same results for the July 1988 monitoring.

In Table 7a for June 1986 it can be seen that during 33 of the 222 (approximately 15 percent) monitored RFE time blocks, a total of five distinct markers were recorded jamming those frequencies. During the July 1988 monitoring period, only 19 of the 173 time blocks (approximately

Table 7. Summary of the Number of Jammer Markers Used to Jam  
(a) RFE, (b) RL and (c) RL-Russian Broadcasts

(a) All RFE languages

	Jun86		Jul88	
	222 time blocks		173 time blocks	
	9 maximum		9 maximum	
	3.63 average		3.02 average	
markers				
0	4	1.8%	8	4.6%
1	18	8.1%	24	13.9%
2	38	17.1%	38	22.0%
3	55	24.8%	37	21.4%
4	40	18.0%	35	20.2%
5	33	14.9%	19	11.0%
6	24	10.8%	10	5.8%
7	5	2.3%	1	.6%
8	3	1.4%	0	0.0%
9	2	.9%	1	.6%

\*\*\*\*\*

(b) All RL languages

	Jun86		Jul88	
	332 time blocks		548 time blocks	
	14 maximum		16 maximum	
	6.03 average		5.23 average	
markers				
0	1	.3%	0	0.0%
1	9	2.7%	11	2.0%
2	15	4.5%	29	5.3%
3	31	9.3%	78	14.2%
4	36	10.8%	101	18.4%
5	48	14.5%	117	21.4%
6	62	18.7%	68	12.4%
7	34	10.2%	71	13.0%
8	41	12.3%	32	5.8%
9	29	8.7%	22	4.0%
10	13	3.9%	8	1.5%
11	6	1.8%	2	.4%
12	2	.6%	7	1.3%
13	3	.9%	1	.2%
14	2	.6%	0	0.0%
15	0	0.0%	0	0.0%
16	0	0.0%	1	.2%

\*\*\*\*\*

(c) Russian RL

	Jun86		Jul88	
	256 time blocks		430 time blocks	
	14 maximum		16 maximum	
	6.20 average		5.38 average	
markers				
0	1	.4%	0	0.0%
1	8	3.1%	10	2.3%
2	15	5.9%	18	4.2%
3	20	7.8%	55	12.8%
4	22	8.6%	77	17.9%
5	34	13.3%	90	20.9%
6	47	18.4%	56	13.0%
7	25	9.8%	61	14.2%
8	33	12.9%	27	6.3%
9	26	10.2%	18	4.2%
10	13	5.1%	8	1.9%
11	5	2.0%	2	.5%
12	2	.8%	7	1.6%
13	3	1.2%	0	0.0%
14	2	.8%	0	0.0%
15	0	0.0%	0	0.0%
16	0	0.0%	1	.2%

11 percent) of the monitored RFE broadcasts were jammed by five different markers. Tables 7b and 7c show similar statistics for all RL and RL Russian broadcasts. From the results shown in Table 7, we can see that the general trend was toward a reduction in the average number of jammer markers used to jam RL/RFE broadcasts during the July 1988 monitoring period. Figures 5, 6, and 7 illustrate the statistics presented in Table 7. The cumulative distributions of the percent numbers of markers are plotted for the RFE, RL, and RL Russian broadcasts in Figures 5, 6, and 7, respectively. In all three of these figures one can notice a decrease in the number of jammers used in July 1988. It is possible that other factors such as changes in propagation conditions or differences in the manner in which the frequency schedule was set up could account for some of the decrease in the average number of jammers recorded during July 1988.

#### 4. SUMMARY AND CONCLUSIONS

The results presented in this report for the July 1988 monitoring program complement those presented in previous monitoring programs. The jammers located in the Eastern Bloc countries have not changed greatly in location or Morse code identifier. The languages targeted by the individual Eastern Bloc markers have also not changed since June 1986. Although the jammer markers changed quite drastically in the Soviet Union, on average the jamming locales within the Soviet Union did not. During the July 1988 monitoring program we saw significant groupings of jammers in the major cities as well as in the Soviet far east, the Ukraine, the Kazak, and Uzbek Soviet Socialist Republics. During this program we were able to locate 61 jammers in the Soviet Union, 5 in Czechoslovakia, and 3 in Bulgaria. Slightly fewer jammers were located in the Soviet Union than before and roughly the same number were located in Czechoslovakia and Bulgaria as were noticed before.

The overall level of jamming from the Soviet Union decreased between the June 1986 and July 1988 monitoring programs. Fewer jammers were located and recorded during July 1988, and there was a slight decrease in the average number of jammers targeted against RFE/RL broadcasts. Jamming aimed at VOA, BBC, IBA, and DW broadcasts was also reduced. Polish language

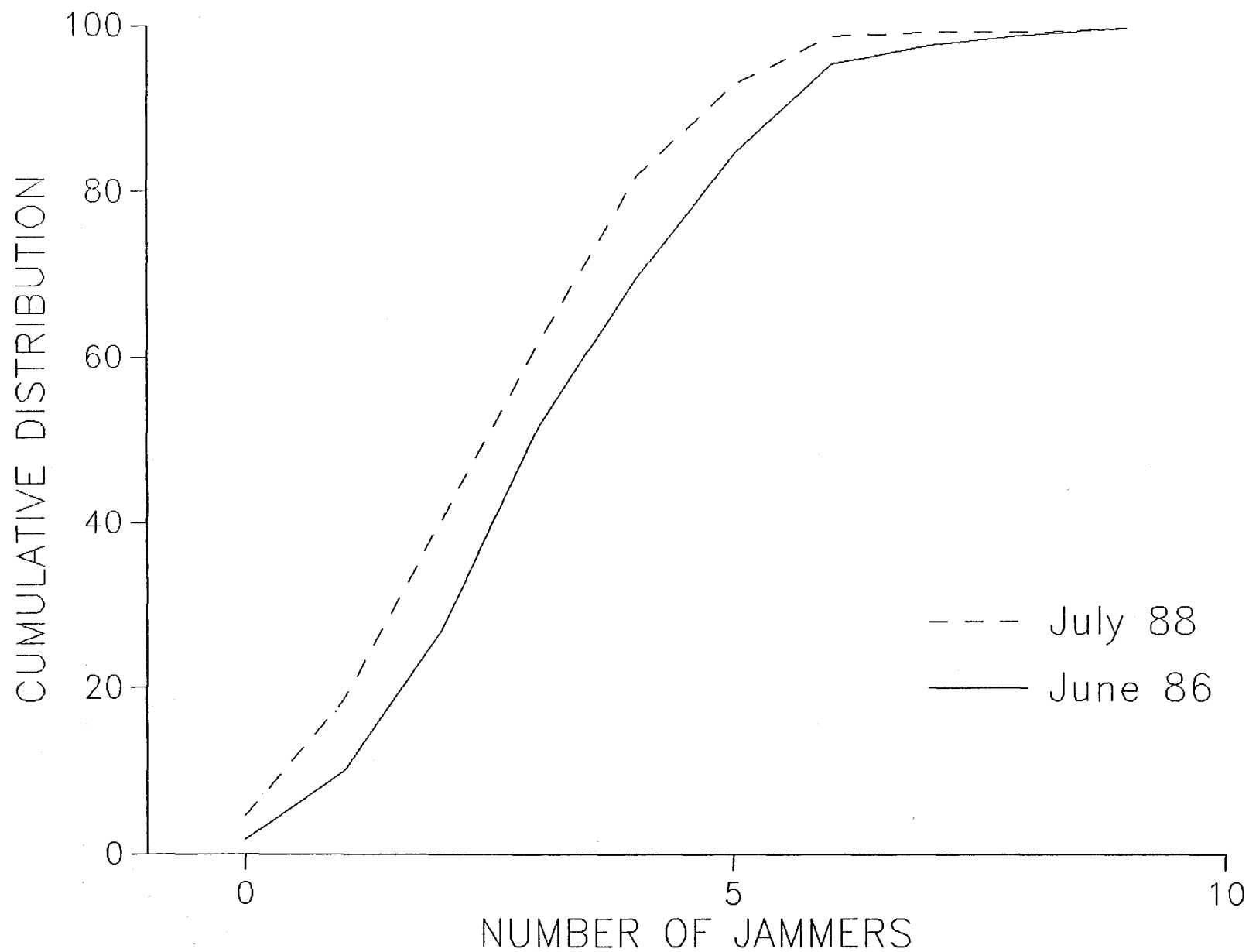


Figure 5. Cumulative distribution of the number of jammer markers recorded on Radio Free Europe's frequencies.

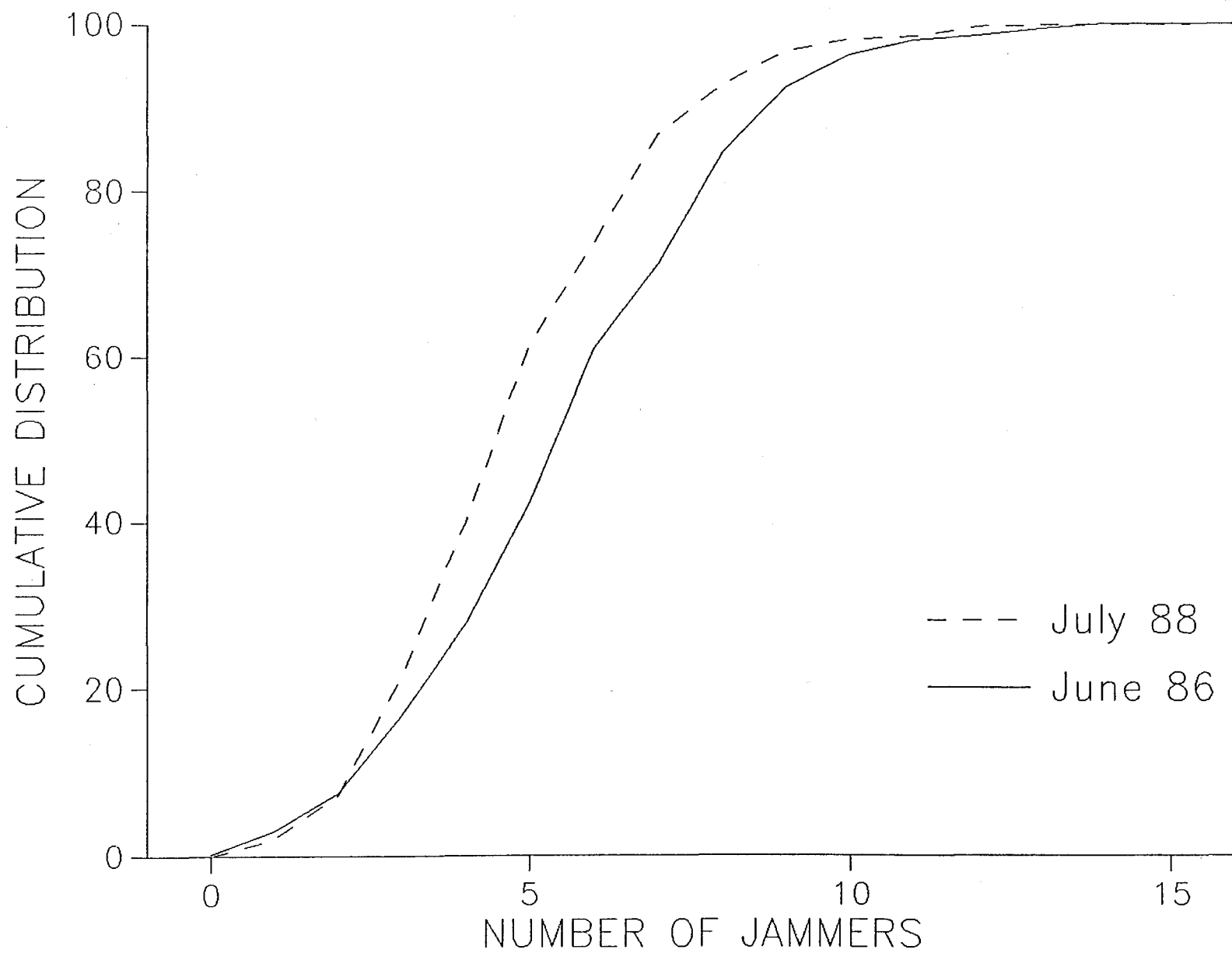


Figure 6. Cumulative distribution of the number of jammer markers recorded on Radio Liberty's frequencies.

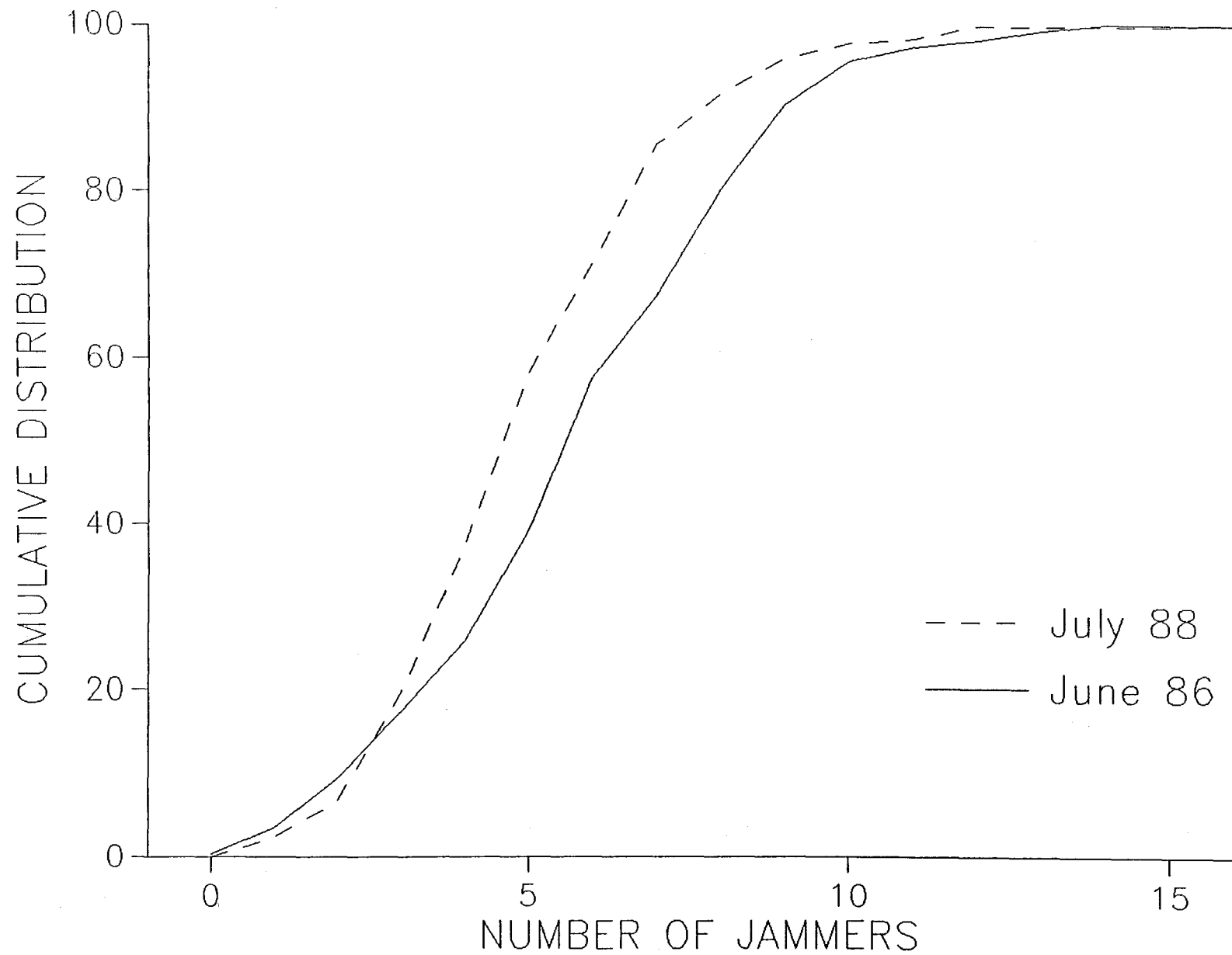


Figure 7. Cumulative distribution of the number of jammer markers recorded on Radio Liberty's Russian frequencies.



services were no longer jammed on any frequencies that were observed to be directed into that country.

With the changed environment in East/West relations, intentional, harmful interference to the high frequency broadcast service has been curtailed dramatically both before and after the most current monitoring period. However, jamming, at any level of activity, is disruptive not only to the targeted broadcast, but also to other HF broadcasts in the region. Because of the long-distance nature of high frequency, sky-wave propagation, jamming transmissions directed into a given area are also likely to be carried beyond those service areas and could potentially create interference to unintended services. It is for these reasons that continued monitoring of harmful interference to the HF broadcast service must continue on a routine basis.

#### 5. REFERENCES

- IFRB (1987), Circular-letter No. 703, dated July 30, 1987, Subject: Monitoring programmes in the bands allocated to the high frequency broadcasting service with a view to identifying stations causing harmful interference, International Frequency Registration Board, Geneva, Switzerland.
- ITU (1984), Report to the Second Session of the World Administrative Radio Conference for the Planning of the HF bands Allocated to the Broadcasting Service, International Telecommunication Union, Geneva, Switzerland.
- ITU (1987), Final Acts of the World Administrative Radio Conference for the Planning of the HF Bands Allocated to the Broadcasting Service, (HFBC-87), Geneva, Switzerland, 159 pp.
- Sowers, M.W., G.R. Hand, and C.M. Rush (1985), Monitoring of harmful interference to the HF broadcasting service: I. Results of the October 1984 and March/April 1985 coordinated monitoring periods, NTIA Report 85-187, December, 318 pp. (NTIS Order No. PB 86-163011).
- Sowers, M.W., G.R. Hand, and C.M. Rush (1986), Monitoring of harmful interference to the HF broadcasting service: II. Results of the January 1986 coordinated monitoring period, NTIA Report 86-206, October, 136 pp. (NTIS Order No. PB 87-180212/AS).
- Sowers, M.W., G.R. Hand, and C.M. Rush (1987), Monitoring of harmful interference to the HF broadcasting service: III. Results of the July 1987 coordinated monitoring period, NTIA Report 87-213, March, 176 pp. (NTIS Order No. PB 87-210274/AS).



APPENDIX A  
LOCATION OF JAMMERS, TARGETED LANGUAGE, AND BROADCASTER  
JULY 1988

SET D file = DDDD

# FIXES= 3071 Date= 7/1988

#	ID	DA	TIME	FREQ	LANG	WHO	LOCATION	SMA	SMI	ORIEN	LAT	LONG												
1=**	4	1141	6015	????	????????????	0	0	0	0	0.00N	0.00E	sl 344B	bu 312B											
2=**	6	0311	6015	????	????????????	0	0	0	0	0.00N	0.00E	sl 343B	bu 312B	bu 323B										
3=**	7	0041	6015	????	????????????	0	0	0	0	0.00N	0.00E	bu 312B	sl 343B											
4=**	7	0420	6015	????	????????????	0	0	0	0	0.00N	0.00E	sl 344B	bu 312B											
5=**	8	0111	6015	????	????????????	0	0	0	0	0.00N	0.00E	sl 342B	bu 325B	bu 312B										
6=**	8	1211	6015	????	????????????	0	0	0	0	0.00N	0.00E	bu 312B	sl 343B											
7=**	8	0411	6015	????	????????????	0	0	0	0	37.94N	126.65E	SL 342B	BU 323B											
8=**	8	0511	6015	????	????????????	0	0	0	0	0.00N	0.00E	sl 343B	bu 312B											
9=**	9	0611	6015	????	????????????	0	0	0	0	32.61S	50.83W	BU 0	SL 338B											
10=**	4	2312	6080	????	????????????	4835	750	118	50.22N	24.76E	VB 36C	SS 42C	BE 49C											
11=**	9	2311	6080	????	????????????	4376	870	119	40.26N	21.62E	PS 40D	SS 52C	BE 60C											
12=**	5	1215	6180	????	????????????	0	0	0	37.60N	119.25E	DS 323B	LV 316B												
13=**	11	0940	7105	????	????????????	0	0	0	30.30N	132.35E	FE 301C	HL 294C												
14=**	11	0910	7150	????	????????????	2248	777	55	29.69N	129.93E	AN 286D	FE 297C	HL 294C	LV 303C										
15=**	13	0911	7150	????	????????????	2312	731	61	32.14N	133.64E	HL 295C	DS 310C	LV 310C	FE 298C										
16=**	11	1240	7250	????	????????????	3753	632	38	29.91N	117.05E	LV 316C	HL 293D	AN 287C	DS 324B	FE 308B									
17=**	12	1040	7250	????	????????????	2722	537	43	34.87N	129.73E	LV 309C	HL 298D	FE 301B	DS 318B	AN 284C									
18=**	12	1118	7250	????	????????????	370	243	138	24.40S	78.75E	vb 281C	HL 298D	GI 310D	DS 318B	BE 38C	AN 292C								
19=**	14	0417	7250	????	????????????	4443	616	117	48.87N	22.23E	KI 49C	SS 43C	VB 41B	BE 51C	LR 42D									
20=**	13	1010	7250	????	????????????	2179	620	53	31.26N	130.49E	LV 306C	FE 302B	HL 295C	DS 313B										
21=**	14	1342	7250	????	????????????	2566	601	38	25.38N	113.51E	LV 315C	HL 293C	FE 309B	DS 319C	AN 289B	ki 268C								
22=**	17	1020	7250	????	????????????	2292	769	32	.69N	94.06E	VB 35D	LV 311B	KI 314C	HL 297C	DS 318C									
23=**	22	0348	9430	????	????????????	1214	461	151	1.52S	65.31E	SS 57C	VB 39B	LV 331C	LR 52C	HL 340D	PS 44C								
24=**	18	1340	9545	????	????????????	0	0	0	0.00N	0.00E	FE 336C	BE 50C	AN 329C	AL 48A										
25=**	22	1040	9555	????	????????????	7731	962	29	13.37N	99.65E	lv 323C	ki 45D	ds 44C											
26=**	23	1440	9560	????	????????????	1749	354	52	52.91N	128.10E	LV 315C	GI 339C	DS 323B											
27=**	18	1110	9570	????	????????????	1273	333	26	13.09S	111.33E	KI 322C	HL 318C	FE 321B	DS 327C	LV 324A									
28=**	19	1110	9570	????	????????????	0	0	0	0.00N	0.00E	VB 323B	LR 340B	KI 290B	BE 359B	AL 328A	gi 127B								
29=**	18	1140	9630	????	????????????	1615	394	51	51.04N	130.79E	gi 127B	vb 323B	lr 160B											
30=**	19	1015	9630	????	????????????	2976	834	51	30.32N	114.02E	FE 321C	LV 316B	HL 318C	AN 298C	KI 327C	DS 322B								
31=**	19	1340	9630	????	????????????	3145	527	34	26.96N	100.62E	gi 147C	LV 315C	HL 298B	DS 321C										
32=**	19	0910	9630	????	????????????	1679	590	59	37.84N	124.94E	DS 327B	LV 322A	HL 299C	AN 302C										
33=**	20	1010	9630	????	????????????	2530	710	48	33.42N	120.01E	KI 324B	HL 303B	LV 318C	FE 310C	DS 321C									
34=**	20	1240	9630	????	????????????	1939	574	39	26.49N	106.60E	FE 310C	LV 318C	KI 325C	HL 299C	DS 319B									
35=**	21	1142	9630	????	????????????	0	0	0	56.78N	51.22W	AN 297C	LV 321B	HL 298B	KI 332C	DS 329B	FE 321C								
36=**	22	1111	9630	????	????????????	1459	460	46	31.54N	123.28E	GI 290C	KI 35D	GI 46D											
37=**	21	1010	9630	????	????????????	613	373	13	11.92S	84.48E	KI 313C	HL 297B	GI 323C	FE 312C	DS 319C	AN 284B								
38=**	23	1247	9630	????	????????????	6723	594	51	53.41N	133.37E	LV 310B	VB 32C	AL 42B	SS 36C	LR 38C	KI 28D	HL 294B							
39=**	24	0916	9630	????	????????????	1565	252	93	57.49N	172.23W	FE 315C	DS 316B	BE 37B	AN 287C	LV 313C	KI 28D								
40=**	18	2040	9660	????	????????????	1327	1143	157	22.39N	64.07E	GI 332D	FE 326C	DS 316B											
41=**	19	2110	9670	????	????????????	0	0	0	50.11N	26.39E	LV 319B	fe 328B	KI 329C	GI 331D	DS 332B									
42=**	21	1817	9780	????	????????????	0	0	0	0.00N	0.00E	PS 322B	LV 318B	KI 319C	GI 321D	DS 321B	an 294B								
43=**	5	1914	11740	????	????????????	0	0	0	41.03N	45.32E	SS 42C	LR 42C	HL 313B	BE 48C										
44=**	7	0541	11770	????	????????????	2355	496	21	9.50N	105.41E	SS 41C	PS 38D												
45=**	6	1459	11775	????	????????????	1944	424	38	29.26N	115.90E	ds 325B	lv 332B	gi 335D											
46=**	7	1419	11775	????	????????????	1325	461	22	16.28N	106.00E	RE 45B	CA 40C												
47=**	8	1517	11775	????	????????????	2077	402	20	11.71N	111.45E	LV 305C	KI 323B	DS 318B	AN 287C	AL 346A									
											FE 312C	AL 334B	HL 291C	LV 314A	GI 332C	DS 320B								
											KI 327C	AN 289C												
											VB 20B	KI 329C	HL 298B	GI 321C	FE 309C	DS 321B								
											AL 340A	LV 311C												
											GI 332C	LV 314B	VB 338B	PS 337B	KI 328C	FE 311B								
											CA 342C	BE 10C	SS 47D	AN 287C	AL 333A									

48=**	9	1344	11775	????	??????????????	1446	400	28	26	35N	114.79E	VB 341C	HL 287C	FE 312B	DS 321A	CA 344C	BE 352C			
49=**	10	1438	11775	????	??????????????	1050	390	22	23.29N	112.08E	AL 340A	KI 326C	LV 316C	LR 344C	KI 327C	FE 312A				
50=**	10	1342	11775	????	??????????????	1597	401	34	19.47N	107.10E	BK 67B	VB 341C	OS 324B	AL 340A	VB 340C	HL 286B	gi 152C	LV 314C	FE 314A	DS 323A
51=**	4	1240	11780	????	??????????????	2831	700	39	21.20N	110.02E	AL 340B	HL 291C	LV 310B	GI 334D	AN 288C	FE 313B				
52=**	5	0548	11780	????	??????????????	7958	474	117	54.53N	12.33E	ps 345B	CA 47C	BE 47C	AL 39C	LR 43C					
53=**	6	0445	11780	????	??????????????	4375	619	127	40.51N	30.45E	VB 44C	SS 52C	LR 44C	CA 55C	BE 51C	PS 44C				
54=**	7	0316	11780	????	??????????????	1399	759	166	28.88N	47.24E	LV 353C	HL 336B	CA 51C	BE 52B	AN 349C					
55=**	7	0415	11780	????	??????????????	1459	837	168	32.50N	47.41E	ps 40C	HL 336B	CA 53C	BE 42C	AN 343C	al 349C				
56=**	7	0642	11780	????	??????????????	9743	778	37	4.22S	97.53E	al 41B	LV 304C	KI 325C	DS 311B						
57=**	8	0515	11780	????	??????????????	432	311	20	21.17S	85.35E	SS 55C	LV 356D	DS 310B	PS 43B	hl 331B	GI 328B				
											LR 43C	AN 349C	CA 46C	BE 50C	AN 288B	LV 314C				
58=**	9	0518	11780	????	??????????????	1230	489	174	39.45N	34.00E	DS 310B	GI 330C	LR 50D	SS 53C	AN 357A	al 350C	BE 49C			
59=**	10	0510	11780	????	??????????????	1622	587	150	3.33N	68.46E	SS 49C	GI 22C	BE 51B	FE 311C	al 347C	AN 355C				
60=**	7	1349	11810	????	??????????????	1234	82	162	25.61S	98.61E	VB 43B	PS 43B	CA 49C							
61=**	4	1212	11905	????	??????????????	10191	841	32	.59N	97.92E	VB 19B	BE 30C	AL 346B							
62=**	4	0810	11905	????	??????????????	2304	787	66	27.49N	124.19E	LV 308C	FE 313B	AN 288C	DS 314C						
63=**	6	0711	11905	????	??????????????	1777	429	45	27.64N	118.41E	ps 336C	KI 315C	HL 293B							
64=**	5	0743	11905	????	??????????????	2374	541	47	23.62N	112.46E	DS 320C	FE 307B	LV 310A	KI 321C	HL 294B	AN 287C				
65=**	7	0516	11905	????	??????????????	1445	372	37	28.06N	120.42E	LV 311A	HL 292B	DS 318C							
66=**	6	1840	11905	????	??????????????	2626	455	39	21.36N	111.54E	HL 294B	DS 318C	AN 284A							
											HL 292C	AN 286C	LV 310A	FE 311B	GI 338C	KI 322C				
67=**	6	2110	11905	????	??????????????	2290	618	44	27.39N	122.71E	DS 317B									
68=**	6	2244	11905	????	??????????????	2252	403	34	23.49N	118.55E	HL 292C	LV 309B	AN 281C	FE 305B						
69=**	8	0540	11905	????	??????????????	2035	371	35	26.72N	121.05E	AN 283A	HL 290C	FE 307B							
70=**	7	2214	11905	????	??????????????	2112	376	35	25.66N	120.07E	LV 309C	HL 292C	DS 322C	AN 283A	FE 297C					
71=**	8	2219	11905	????	??????????????	3353	386	33	25.53N	118.94E	FE 307B	HL 292C	LV 306C	AN 283A						
72=**	10	0512	11905	????	??????????????	0	0	0	0.00N	0.00E	LV 309C	HL 292D	FE 306B	AN 284A						
73=**	9	2145	11905	????	??????????????	885	328	48	24.65N	119.33E	lv 310D	fe 308C	an 355C							
74=**	10	1821	11905	????	??????????????	2489	507	33	15.92N	108.77E	AN 283A	HL 291A	FE 307B							
											bk 0	LV 310A	LR 344C	KI 322D	gi 146C	FE 306B				
75=**	10	2111	11905	????	??????????????	1550	508	46	27.76N	122.81E	DS 312C	AL 349B								
76=**	8	0110	11955	????	??????????????	0	0	0	0.00N	0.00E	LV 307C	FE 305B	HL 294B	AN 284B	KI 308C					
77=**	13	2240	15155	????	??????????????	1491	341	17	31.80N	106.41E	lv 296C	hl 96C	ds 301B							
											SS 6C	PS 348B	LV 312C	KI 338B	GI 337B	FE 321B				
78=**	11	2241	15225	????	??????????????	1701	434	47	15.58S	114.89E	DS 329A	CA 358B	BE 2B	AL 350A	LR 357C					
79=**	12	0841	15240	????	??????????????	0	0	0	15.41N	85.72E	DS 280C	HL 251B	LV 280A	fe 105B	AN 266A					
80=**	13	1610	15325	????	??????????????	1879	493	48	41.83N	126.46E	SS 41C	HL 295D								
81=**	13	1610	15445	????	??????????????	1786	394	43	40.38N	125.97E	LV 316B	HL 307C	FE 316C	DS 321B	AN 287C					
											LV 315B	KI 327B	HL 306C	gi 146B	FE 312B	DS 318C				
82=**	15	1614	15455	????	??????????????	2368	369	43	43.73N	131.57E	AN 288B									
											FE 311B	DS 320C	AN 286B	LV 313C	KI 329C	HL 310D				
83=**	20	2214	17770	????	??????????????	1760	605	149	45.92N	36.18E	GI 328C									
84=**	13	1110	21795	????	??????????????	11428	510	38	42.25N	119.51E	LV 15D	FE 12C	DS 25B	BE 46B	AN 356C					
85=**	14	1419	7155	ALB	???	3577	593	36	30.30N	117.67E	LV 319C	DS 326B	AN 294B							
86=**	18	1813	9690	AMHA	VOA KAV	0	0	0	0.00N	0.00E	LV 320C	HL 294D	FE 308B	AN 288B						
87=**	20	1820	9690	AMHA	VOA KAV	1306	616	34	23.68N	117.23E	lv 311C	fe 306B	an 290B							
88=**	24	1842	9690	AMHA	VOA KAV	2038	645	62	34.67N	124.15E	EN 70C	LV 311C	FE 301B	HL 292C	AN 287B					
89=**	8	2001	6015	ARAB	VOA	0	0	0	46.91N	9.75E	LV 312B	HL 300B	FE 308C							
90=**	11	1211	15150	ARAB	VOA	0	0	0	26.31N	110.31E	RO 340C	BU 323B								
91=**	16	1213	15150	ARAB	VOA	0	0	0	0.00N	0.00E	VB 348C	DS 322B								
92=**	12	2110	15245	ARAB	VOA	3893	787	133	44.07N	37.75E	gi 155B	ki 332B								
93=**	12	0317	15340	AZ	RL L4 100	1335	669	148	28.01N	46.57E	SS 43C	LR 43B	GI 28C							
											LR 51C	PS 41C	SS 34D	VB 39C	AN 326D	HL 337B				
94=**	19	1416	17760	AZ	RL L3 100	0	0	0	0.00N	0.00E	GI 358D	CA 57C	BE 57B							
95=**	8	0410	11825	BULG	RFE G10 50	1030	376	142	32.86S	95.52E	vb 39C	gi 2C	be 22B	an 2C						
											LR 47C	gi 42C	BE 51B	GW 207B						

96=**	4	2110	11935	BULG	RFE	G9	50	4125	499	119	52.29N	22.02E	SS	42C	LR	49C	BE	44B	VB	38C					
97=**	7	0342	11970	BULG	RFE	G14	250	1883	680	140	44.00N	25.46E	lv	50C	DS	30B	AN	6C	GI	30C	VB	47B			
98=**	15	0331	15115	BULG	RFE	G9	50	0	0	0	54.03N	47.07E	RO	50C	BD	67A									
99=**	15	0431	15115	BULG	RFE	G9	50	0	0	0	32.42S	179.87W	RO	50C	BD	0									
100=**	19	1941	17725	BULG	RFE	G10	50	2089	716	139	43.61N	27.02E	KI	39C	AN	2C	AL	44C	PS	42B					
101=**	24	1431	17725	BULG	RFE	G10	50	0	0	0	28.11S	179.87W	RO	40C	BD	0									
102=**	24	2008	17725	BULG	RFE	G10	50	7382	364	130	39.96N	82.65E	KR	70D	KO	70C	BL	76C	IT	75B					
103=**	24	1731	17725	BULG	RFE	G10	50	0	0	0	0.00N	0.00E	ro	310C	bk	0									
104=**	6	0441	6115	CZEC	RFE	B3	100	4013	693	112	52.68N	16.10E	SS	40C	LR	49D	BE	47C							
105=**	12	0418	7245	CZEC	RFE	G12	50	2967	509	107	50.00N	4.40E	VB	41C	SS	44C	PS	49C	BE	55C					
106=**	14	0510	7245	CZEC	RFE	B7	100	4240	605	116	49.98N	20.46E	VB	39B	PS	41C	SS	43C	LR	46C					
107=**	20	1001	9725	CZEC	RFE	B7	100	0	0	0	20.78S	179.87W	RO	30C	BD	0									
108=**	6	2213	11815	CZEC	RFE	G3	250	5555	447	124	19.91S	22.65E	GI	86B	vb	39B	AL	93A	PS	98A	be	48C			
109=**	8	0512	11855	CZEC	RFE	G3B	250	2859	1156	159	23.39N	54.01E	BE	50C	AN	338C	CA	45C							
110=**	11	2311	15255	CZEC	RFE	G14	250	1721	972	179	2.15N	99.92E	AN	289B	GI	332D	SS	35C							
111=**	19	2040	17835	CZEC	RFE	G11	50	1563	701	157	53.69N	13.08E	PS	39C	KI	36D	AN	11B							
112=**	12	1742	21720	CZEC	RFE	G3B	250	3962	381	108	56.07N	.07W	VB	41C	LR	43B	AL	44B							
113=**	12	1401	15290	DARI	RFE	G15	250	1206	349	46	45.90N	141.48E	RO	40C	KI	324C	HL	320D	gi	143C	DS	319B	AN	280B	
													bk	0											
114=**	12	0810	21650	DARI	DW			160	44	95	50.63N	26.91E	KO	70C	kr	82A	IT	100B	MU	70B					
115=**	17	0831	21650	DARI	DW			297	35	104	49.82N	33.34E	KR	85A	ko	80B	IT	95C	bl	100B	MU	75B			
116=**	13	1631	15130	EST	RFE	G15	250	0	0	0	0.00N	0.00E	gw	318B	sl	25A									
117=**	12	1831	7225	EUR	IBA			0	0	0	45.22S	154.72E	RO	110C	BD	78B									
118=**	22	0410	9630	EUR	IBA			34316	956	54	1.39N	130.66E	KI	294B	LV	282C	fe	315D	hl	76D	DS	287C			
119=**	8	0210	11875	GEOR	RL	L6	100	0	0	0	48.36N	34.97E	LR	40C	SS	41C									
120=**	15	1840	15340	GEOR	RL	L4	100	1102	305	108	56.55N	5.52W	SS	35C	KI	35C	GI	43C	VB	42C	SS	35C	KI	35C	
													fe	306C	DS	35A	an	288B	AL	38C					
121=**	12	0411	7130	IRAN	IRN			0	0	0	40.46N	36.44E	AN	355D	SS	48C									
122=**	12	0243	7130	IRAN	IRN			1362	216	101	48.86N	16.36W	VB	44C	AL	66C	SS	52C	PS	50B	LR	56B	GI	55D	
													CA	60C	BE	58C									
123=**	12	1901	7130	IRAN	IRN			435	67	129	36.97N	37.57E	RO	100C	BD	102B	BL	125B	KR	110C	KO	105B	MU	110B	
													it	130C											
124=**	14	0301	7130	IRAN	IRN			235	42	132	42.49N	28.14E	n0	70C	BD	104B	n2	140C	BL	130B	IT	125B	KO	105B	
125=**	15	0701	7130	IRAN	IRN			0	0	0	45.64N	22.96E	RO	60C	BD	104A									
126=**	15	1631	7130	IRAN	IRN			0	0	0	47.45N	23.11E	RO	50C	BD	98C									
127=**	17	1801	7130	IRAN	IRN			0	0	0	34.31S	172.73W	RO	30C	BK	0									
128=**	12	1731	7215	IRAN	IRN			0	0	0	0.00N	0.00E	gn	0	bd	103B									
129=**	18	1140	9685	IRAN	IRN			2134	648	42	22.72N	106.43E	LV	315C	gi	144C	HL	294B	FE	326C	AN	295C	DS	317B	
													KI	325C											
130=**	19	1011	9685	IRAN	IRN			2517	781	55	26.55N	113.16E	HL	295B	FE	317C	LV	311C	DS	314C					
131=**	19	1218	9685	IRAN	IRN			1339	217	66	62.01N	37.14W	PS	33C	GI	38C	BE	35C							
132=**	19	1311	9685	IRAN	IRN			1999	653	48	27.70N	114.25E	LV	320D	HL	295B	FE	314C	DS	321B	AN	286C			
133=**	20	1241	9685	IRAN	IRN			2093	661	49	30.70N	112.08E	HL	298B	gi	290C	DS	323C	LV	321B	AN	288C			
134=**	20	1011	9685	IRAN	IRN			1997	629	54	28.51N	120.39E	FE	306C	DS	317B	GI	314D	KI	324C	HL	294B	LV	315C	
135=**	20	1141	9685	IRAN	IRN			1176	663	3	14.82S	90.79E	VB	38D	KI	326C	BE	35B							
136=**	21	0948	9685	IRAN	IRN			1195	596	149	1.06N	62.17E	HL	294B	VB	40C	KI	32D	be	30B	AL	44A			
137=**	21	1417	9685	IRAN	IRN			1939	623	45	30.32N	110.72E	LV	320B	HL	298B	GI	321C	FE	320B	DS	319C			
138=**	22	1112	9685	IRAN	IRN			1545	517	53	31.74N	126.56E	KI	310C	LV	307B	AN	282C	HL	297B	DS	313C	FE	312C	
139=**	21	1510	9685	IRAN	IRN			2552	737	47	32.86N	118.81E	LV	315C	HL	299C	FE	311B	DS	321C					
140=**	23	1249	9685	IRAN	IRN			7293	548	41	46.35N	122.32E	KI	329C	LV	319B	GI	333D	fe	328B	DS	324C	AN	299C	
141=**	24	1019	9685	IRAN	IRN			1716	383	50	36.64N	131.54E	LV	311A	KI	310C	HL	298C	GI	311D	FE	305C	DS	313C	
													AN	279C											
142=**	12	1935	15130	LITH	RFE	G15	250	0	0	0	0.00N	0.00E	bk	0	gw	318B									
143=**	13	1901	15130	LITH	RFE	G15	250	0	0	0	56.83N	65.44E	GW	318B	BD	56C									
144=**	9	0249	11770	PASH	RFE	HB	250	0	0	0	41.06N	98.52W	DS	40C	GI	332C									
145=**	13	1331	15290	PASH	RFE	G15	250	1144	356	144	16.59N	68.24E	BD	98A	SS	42C	LV	345C	HL	320C	GI	9C	AN	324C	
													AL	15C	DS	355C									
146=**	17	1331	7255	POLI	BBC	WOOF		0	0	0	38.33S	172.73W	RO	50C	BK	0									
147=**	22	0231	9740	RUS	IBA			0	0	0	38.33S	172.73W	RO	50C	BK	0									
148=**	5	1813	11705	RUS	IBA			3504	284	48	49.13N	141.55E	LV	315B	DS	314C	AN	284B	FE	312B					



[illegible]



255=**	13	1740	15370	RUSS	RL	HB	250	571	207	51	42.58N	130.66E	LV 313B	HL 308A	gi 146B	KI 328C	FE 311B	DS 319B
256=**	14	2110	15370	RUSS	RL	HB	250	0	0	0	0.00N	0.00E	AN 286A					
257=**	11	1240	15380	RUSS	RL	P3+	500	0	0	0	25.39S	97.10E	gi 307B	hl 313C	an 324C			
258=**	12	0611	15380	RUSS	RL	P3+	500	0	0	0	0.00N	0.00E	VB 43B	BE 35C				
259=**	14	1011	15380	RUSS	RL	P3+	500	0	0	0	0.00N	0.00E	vb 38C	ss 42D	lr 56C	ki 324C		
260=**	15	1440	15380	RUSS	RL	P3+	500	753	439	16	6.94S	89.98E	vb 34C	ds 9C	lv 39C	an 287C		
261=**	15	1713	15405	RUSS	DW			0	0	0	0.00N	0.00E	VB 29C	KI 328C	GI 30C	AL 35C	SS 38C	GI 326C
262=**	11	0440	15445	RUSS	RL	P2	250	1125	464	162	36.29N	49.73E	FE 319B	DS 324B	AN 291B	SS 38C	LV 314B	
263=**	13	0520	15445	RUSS	RL	P2	250	0	0	0	0.00N	0.00E	ss 28C	gi 21C	al 14C			
264=**	20	0740	17725	RUSS	RL	G10	50	0	0	0	59.92N	179.91W	AN 349B	FE 5C	DS 25B	PS 38C	LR 46B	GI 32C
265=**	24	0531	17725	RUSS	RL	G10	50	0	0	0	49.84N	53.68E	SS 42D	VB 42C	GI 359C	AN 344B	SS 42C	VB 39C
266=**	20	0640	17735	RUSS	RL	G2B	250	0	0	0	66.25N	159.33W	GI 323C					
267=**	19	1911	17750	RUSS	RL	HC	250	2279	700	25	46.01N	78.36E	fe 308C	an 315C	ds 321B			
268=**	20	0740	17750	RUSS	RL	HC	250	2533	299	79	57.64N	172.46E	KI 326C	DS 324C				
269=**	21	0610	17750	RUSS	RL	HC	250	11688	1038	28	18.59N	100.35E	RO 60C	BD 72B				
270=**	22	0740	17750	RUSS	RL	HC	250	0	0	0	0.00N	0.00E	GI 328C	AN 325C				
271=**	20	1211	17760	RUSS	RL	L3	100	3830	490	151	17.81S	75.05E	LV 332C	HL 325B	gi 322C	DS 358B	AN 328C	
272=**	20	0716	17760	RUSS	RL	L3	100	5191	577	57	50.90N	144.03E	FE 308C	KI 324C	LV 318B	GI 321C	DS 320C	
273=**	22	0740	17760	RUSS	RL	L3	100	0	0	0	15.78S	83.78E	LV 322C	GI 345D	FE 316B			
274=**	18	1931	17770	RUSS	RL	G3A	250	0	0	0	0.00N	0.00E	lr 18C	gi 9D	ds 320C			
275=**	18	1731	17770	RUSS	RL	G3A	250	0	0	0	39.44S	172.73W	GI 17C	AL 42B	KI 31C			
276=**	19	1801	17795	RUSS	DW			0	0	0	0.00N	0.00E	LV 316B	KI 325C	GI 325C	DS 320C		
277=**	19	1610	17885	RUSS	RL	G18	10	4096	920	177	29.36N	44.65E	GI 355D	DS 319B				
278=**	21	1940	17885	RUSS	RL	G18	10	1962	948	171	18.31N	52.71E	ro 110C	gn 0				
279=**	18	1001	17895	RUSS	RL	P1+	500	0	0	0	70.97N	129.00E	RO 60C	BK 0				
280=**	20	1210	17895	RUSS	RL	P1+	500	0	0	0	0.00N	0.00E	ro 60C	bd 75B	bk 0			
281=**	20	0831	17895	RUSS	RL	P1+	500	1200	141	67	51.58N	35.09E	LV 15C	gi 355C	DS 23C	AN 347B		
282=**	22	0631	17895	RUSS	RL	P1+	500	0	0	0	70.97N	129.00E	lv 317C	KI 30C	HL 310C	ds 322C	GI 28B	AN 352C
283=**	22	1346	17895	RUSS	RL	P1+	500	0	0	0	3.55S	99.42E	GN 0	RO 20C				
284=**	23	1231	17895	RUSS	RL	P1+	500	0	0	0	0.00N	0.00E	ki 33C	vb 25C	gi 24C			
285=**	24	1301	17895	RUSS	RL	P1+	500	0	0	0	45.42S	157.55E	RO 50C	gn 0	GI 26C	VB 36C		
286=**	16	0731	21510	RUSS	RL	HD	250	0	0	0	0.00N	0.00E	RO 20C	GN 0				
287=**	14	1140	21735	RUSS	RL	G18	10	0	0	0	11.35S	106.90E	GI 332B	SS 45B				
288=**	16	1101	21745	RUSS	RL	G9	50	1387	327	169	34.31S	172.73W	ro 60C	gn 0				
289=**	20	1212	17750	TURK	RL	HC	250	0	0	0	57.80N	4.21E	RO 110C	BD 75B				
290=**	20	2111	9565	UKR	RL	P4	250	0	0	0	0.00N	0.00E	gn 0	bd 81B				
291=**	21	2131	9565	UKR	RL	P4	250	0	0	0	52.10N	37.09E	PS 332C	SS 44C				
292=**	5	0331	11885	UKR	RL	P5	250	0	0	0	0.00N	0.00E	RO 30C	BK 0	BK 0			
293=**	6	0513	11885	UKR	RL	P5	250	4479	788	141	38.14N	47.74E	KI 33C	GI 36C				
294=**	9	0418	11885	UKR	RL	P5	250	1362	428	130	57.24N	23.08E	ss 43C	gi 311D	be 45C	an 322B	ds 109C	
295=**	8	2211	11885	UKR	RL	P5	250	2819	643	142	27.45N	51.58E	RO 50C	BD 75B				
296=**	11	0512	15380	UKR	RL	P3	250	0	0	0	0.00N	0.00E	gw 26B	bd 78B				
297=**	11	0410	15380	UKR	RL	P3	250	1416	454	179	33.19N	43.86E	SS 44C	PS 38C	LR 46C	AL 32B		
298=**	20	1331	17735	UKR	RL	G3	250	1045	201	61	56.54N	38.81E	GI 21C	PS 38C	LR 59C	BE 37C	AL 27C	DS 22C
299=**	16	1331	15435	URDU	VOA			428	227	146	39.44S	172.73W	AN 2C	CA 36C	gw 27B			
300=**	20	1618	9695	hung	RFE	B5	100	1998	517	43	36.17N	123.47E	SS 41C	PS 43C	HL 310D	CA 48B	BE 48B	AL 43C
301=**	21	1110	9695	hung	RFE	B5	100	0	0	0	62.86N	39.85W	LR 43C					
302=**	21	1644	9695	hung	RFE	B5	100	1922	537	51	38.46N	129.80E	HL 312C	LV 19C	FE 16C	LV 19C	SS 39D	GI 28C
303=**	22	1643	9695	hung	RFE	B5	100	2400	693	47	33.35N	120.35E	SS 44D	AN 349A	FE 16C	VB 35C		
304=**	5	2143	11895	hung	RFE	G1B	250	3557	667	40	26.77N	120.26E	RO 40C	GI 22C	VB 32D	KI 22C		
305=**	6	2146	11895	hung	RFE	G1B	250	0	0	0	30.40N	122.22E	RO 60C	BK 0	BK 0			
306=**	8	2213	11895	hung	RFE	G1B	250	329	28	0	53.35N	7.27E	AN 289C	GI 326C	LV 315C	DS 322B	HL 301C	FE 307B
													GI 37D	BE 32B				
													DS 321B	KI 326B	FE 303B	HL 301C	LV 320C	
													DS 321C	GI 336C	HL 300C	FE 303C	LV 313B	
													LV 309B	HL 292D	FE 306B	AN 284C		
													AN 284C	FE 308B				
													BK 0	VB 39C	PS 43C	SS 43C	CA 47B	LR 44C
													HE 51B	AL 42C				

307=**	9	2216	11895	hung	RFE	G1B	250	1579	456	139	39.39N	37.54E	VB	39B	PS	44C	GI	38C	LR	45C	FE	26C	BE	48B
308=**	10	2240	11895	hung	RFE	G1B	250	5269	553	128	49.63N	26.05E	DS	55C	CA	47B	SS	40C	AN	337C				
309=**	9	2040	11725	poli	RFE	G4	250	2492	315	126	44.07N	20.90E	PS	40C	LR	43B	GI	33C	AL	39C	VB	38C		
310=**	10	2010	11725	poli	RFE	G4	250	1288	173	98	53.83N	14.64W	VB	46B	SS	48C	PS	44B	LR	49B	KI	40B	GI	40B
311=**	10	1910	11725	poli	RFE	G4	250	3637	148	84	54.18N	30.19W	CA	53B	BE	56B	AL	44B						
312=**	19	1611	17805	poli	RFE	G4B	250	0	0	0	48.78N	6.81E	VB	46B	SS	30C	PS	44B	LR	50B	KI	42C	GI	41B
313=**	22	0431	9595	roma	RFE	G1	250	0	0	0	47.28N	22.73E	CA	53B	BE	55B								
314=**	10	1910	11770	roma	RFE	G3	250	1820	435	144	20.55S	91.85E	VB	40C	ss	40C	LR	41C	ki	90B	BE	40B	AN	284C
315=A5	4	0445	11975	****	*****			4844	462	134	38.34N	34.94E	BE	51B	KI	36C	LR	47C	CA	50C	VB	46B	AL	42B
316=A5	6	0415	11975	****	*****			3028	275	125	44.45N	21.97E	SS	49D	PS	45B								
317=A5	8	0416	11975	****	*****			2922	548	133	40.94N	29.72E	VB	43B	SS	51C	PS	39B	LR	48C	CA	52B	BE	55A
318=A5	4	0441	11825	BULG	RFE	G10	50	6605	662	126	41.21N	28.25E	AL	46B										
319=A5	8	0431	11825	BULG	RFE	G10	50	1454	102	128	40.82N	35.05E	KI	37B	SS	48C	DS	28B	LR	50B	PS	42C	GI	38C
320=A5	9	0340	11825	BULG	RFE	G10	50	7237	418	141	32.41N	41.74E	VB	46B	PS	45B	LR	47C	SS	49D				
321=A5	4	0349	11970	BULG	RFE	G14	250	9623	581	112	50.70N	9.61E	BD	105B	BK	105B	AN	338C	DS	27C	KI	37C	LV	32C
322=A5	6	0343	11970	BULG	RFE	G14	250	2218	161	87	54.93N	27.82W	PS	44C	SS	48C	LR	44B						
323=A5	10	0410	11970	BULG	RFE	G14	250	1347	478	125	54.94N	16.08E	KI	35C	CA	46C	LR	47B	PS	45B	BE	53B	AL	42A
324=A5	18	2119	17725	BULG	RFE	G10	50	1917	817	163	44.82N	27.53E	PS	45C	LR	46C	VB	43B						
325=A5	20	2042	17725	BULG	RFE	G10	50	1484	530	149	45.69N	22.61E	VB	42C	LR	46C	AN	4C						
326=A5	20	2116	17725	BULG	RFE	G10	50	2190	658	146	44.34N	22.23E	FE	20C	DS	33C	AN	358C						
327=A5	21	2011	17725	BULG	RFE	G10	50	1554	629	150	42.71N	25.05E	VB	44B	GI	38B	CA	50B	BE	53A	AL	43C		
328=A5	24	1444	17725	BULG	RFE	G10	50	1978	871	141	46.51N	24.46E	BK	0	LR	45D	AL	44C	CA	51C	BE	50B	SS	44C
329=A5	24	2011	17725	BULG	RFE	G10	50	4404	1089	166	32.46N	32.75E	GI	38C	KI	38C	PS	43C						
330=A5	12	1746	21500	BULG	RFE	G1A	250	3658	287	126	46.09N	21.53E	KR	60B	MU	60C	ko	50C	IT	65B				
331=A5	9	2111	11895	hung	RFE	G1B	250	368	20	0	52.63N	7.27E	DK	0	BD	54A								
332=AB	5	0910	11905	****	*****			4504	245	119	51.50N	77.70E	LV	308D	FE	309C	DS	318B						
333=AB	7	0031	6035	IRAN	IRN			0	0	0	54.78N	7.27E	FE	321B	LV	309B	GI	331D	DS	324C	AN	290B	GI	330C
334=AG	12	1010	7150	****	*****			18183	966	40	29.50N	119.60E	FE	321B	DS	326B	AN	290B	LV	309A				
335=AG	6	1210	11905	****	*****			2835	359	32	6.04S	90.33E	PS	339C	LV	315B	KI	328C	FE	314B	DS	322C	AN	288C
336=AG	8	1441	11905	****	*****			2828	388	41	45.70N	131.12E	VB	346C	AL	331B								
337=AG	8	1140	11905	****	*****			0	0	0	0.00N	0.00E	gi	334D	an	285C	fe	321C						
338=AG	8	1240	11905	****	*****			0	0	0	0.00N	0.00E	an	294C	fe	321C								
339=AG	9	1218	11905	****	*****			0	0	0	51.63N	146.72E	FE	310C	DS	321B								
340=AG	9	1140	11905	****	*****			16526	850	32	21.22N	111.81E	FE	310B	DS	318C	AN	288C						
341=AG	10	1146	11905	****	*****			7411	460	31	18.01N	108.31E	KI	327C	LV	315C	FE	311A	DS	320B	AN	287B	GI	338C
342=AG	10	1340	11905	****	*****			10604	429	47	47.71N	130.19E	LV	315C	FE	314B	DS	325A						
343=AG	21	1831	17760	GEOR	RL	L3	100	0	0	0	54.02N	7.27E	BD	62B	BK	0								
344=AG	20	1040	17750	KAZA	RL	HC	250	0	0	0	58.62N	125.33E	HL	326B	GI	338C								
345=AG	23	1216	17750	TURK	RL	HC	250	2040	987	159	38.93N	70.97E	SS	53D	LR	22C	HL	325C	CA	27C	BE	25C		
346=AG	11	0010	7105	PASH	VOA			0	0	0	56.06N	7.27E	BK	0	SS	36C								
347=AL	18	1910	9520	RUSS	RL	L1	100	1415	513	54	49.07N	136.99E	LV	322D	HL	315C	AN	287C						
348=AL	19	2147	9520	RUSS	RL	L1	100	0	0	0	48.79N	134.36E	AN	289B	HL	315C								
349=AL	18	1714	9715	RUSS	DW			0	0	0	63.03N	175.02W	LV	326C	AN	290B								
350=AL	21	1810	9715	RUSS	DW			2169	737	60	50.35N	126.21E	LV	320C	HL	317C	DS	329B						
351=AL	4	1648	11915	RUSS	DW			0	0	0	55.14N	141.11E	HL	323C	AN	292D								
352=AL	12	0510	15290	RUSS	RL	G15	250	1701	209	44	50.52N	126.73E	HL	317C	AN	296A	FE	318B						
353=AL	12	0616	15290	RUSS	RL	G15	250	1708	557	53	50.54N	129.75E	LV	320D	AN	294C	HL	317C						
354=AL	12	1010	15290	RUSS	RL	G15	250	0	0	0	51.20N	137.97E	LV	318C	HL	318C								
355=AL	12	1141	15290	RUSS	RL	G15	250	0	0	0	0.00N	0.00E	lv	313C	hl	319D	ds	326B						
356=AL	13	0941	15290	RUSS	RL	G15	250	2115	766	72	52.19N	133.75E	HL	319C	LV	319C	DS	328C						









582=BF	5	1613	6105	RUSS	RL	L9	20	0	0	0	0.00N	0.00E	an	297C	fe	314C			
583=BF	5	1240	6105	RUSS	RL	L9	20	1762	426	45	47.78N	126.31E	FE	315C	AN	294B	HL	314C	
584=BF	6	1312	6105	RUSS	RL	L9	20	6980	235	55	56.87N	143.06E	LV	321C	AN	293B	FE	318B	
585=BF	7	1149	6105	RUSS	RL	L9	20	17318	829	34	35.81N	110.61E	LV	320C	FE	320C	AN	296C	
586=BF	6	1640	6105	RUSS	RL	L9	20	0	0	0	0.00N	0.00E	fe	311C	an	297C			
587=BF	7	1412	6105	RUSS	RL	L9	20	4830	216	65	60.08N	156.12E	LV	320C	FE	318B	AN	291C	
588=BF	9	1240	6105	RUSS	RL	L9	20	1840	655	59	49.05N	130.84E	HL	315C	DS	328C	AN	290D	LV 319C
589=BF	10	0942	6105	RUSS	RL	L9	20	1741	354	56	55.11N	148.19E	AN	287C	HL	323D	DS	328C	
590=BF	9	1740	6105	RUSS	RL	L9	20	0	0	0	50.42N	136.85E	HL	317B	AN	289C			
591=BF	10	1540	6105	RUSS	RL	L9	20	0	0	0	50.96N	151.89E	HL	320C	FE	307B			
592=BF	13	1742	7220	RUSS	RL	L2	100	0	0	0	61.86N	156.90W	AN	285D	FE	317B			
593=BF	16	1546	7220	RUSS	RL	L2	100	1700	655	68	53.75N	136.73E	LV	320C	FE	317C	HL	321C	
594=BF	18	1744	9520	RUSS	RL	L1	100	0	0	0	0.00N	0.00E	lv	324C	hl	318B	an	287B	
595=BF	18	1140	9520	RUSS	RL	L1	100	9577	679	39	39.85N	123.31E	DS	321C	AN	290C	KI	327C	LV 316C
596=BF	19	2040	9520	RUSS	RL	L1	100	0	0	0	49.57N	136.72E	LV	317C	HL	316C			
597=BF	23	1640	9565	RUSS	RL	L7	100	1256	113	110	58.38N	152.05W	DS	325A	LV	330D	KI	329B	FE 310C an 298C
598=BF	22	1640	9565	RUSS	RL	L7	100	4904	213	67	61.13N	156.77E	LV	323C	DS	325B	AN	295C	FE 314C
599=BF	24	1640	9565	RUSS	RL	L7	100	6714	354	41	43.63N	125.40E	LV	330D	GI	336D	FE	318B	DS 322A AN 290B
600=BF	21	2340	9680	RUSS	RL	HA	250	0	0	0	14.85S	89.69E	AN	290C	FE	311B			
601=BF	24	2316	9680	RUSS	RL	HA	250	0	0	0	24.04N	110.55E	FE	313B	AN	290C			
602=BF	23	1519	9715	RUSS	DW			0	0	0	0.00N	0.00E	fe	316B	an	295C	lv	325D	
603=BF	24	1511	9715	RUSS	DW			0	0	0	50.87N	141.85E	HL	318B	DS	322B			
604=BF	22	0040	9750	RUSS	RL	P2	250	0	0	0	36.17S	74.71E	FE	309B	AN	291B			
605=BF	22	2248	9750	RUSS	RL	P2	250	10117	636	35	34.24N	117.74E	LV	315C	DS	321C	AN	290B	
606=BF	23	2140	9750	RUSS	RL	P2	250	0	0	0	15.98N	99.68E	LV	316D	FE	318B			
607=BF	23	2311	9750	RUSS	RL	P2	250	0	0	0	55.90N	146.11E	LV	320C	AN	290C			
608=BF	24	2340	9750	RUSS	RL	P2	250	4731	288	58	56.78N	151.20E	LV	320C	FE	311C	AN	289C	
609=BF	10	0143	11725	RUSS	RL	P5	250	0	0	0	33.45S	77.81E	GI	23C	AN	290C			
610=BF	4	0940	11770	RUSS	RL	B6	100	887	193	55	55.79N	146.13E	AL	330B	PS	336B	LV	320B	KI 327B HL 315C GI 331C
													BE	320C	DS	325A	CA	329C	AN 292B
611=BF	6	1010	11770	RUSS	RL	B6	100	998	120	69	61.60N	162.72E	BE	329B	KI	329B	AL	338B	DS 327B GI 332C CA 334B
													LV	318C	AN	292B	FE	316C	
612=BF	5	0911	11770	RUSS	RL	B6	100	1157	352	38	48.40N	130.17E	BE	341C	AL	338A	LV	319C	KI 330B HL 314C GI 326C
													DS	327C	AN	291C			
613=BF	8	1017	11770	RUSS	RL	B6	100	1646	438	48	46.30N	130.25E	HL	312C	LV	316C	FE	316B	ps 160C AN 289C KI 322C
													DS	323C					
614=BF	5	0711	11855	RUSS	RL	HA	250	1302	281	47	49.52N	133.63E	AL	331B	LV	319B	KI	327B	HL 313C GI 331C FE 317B
													DS	326B	AN	290B			
615=BF	4	0713	11855	RUSS	RL	HA	250	1719	187	68	61.60N	161.88E	PS	336B	LV	320C	GI	320D	AL 328B AN 293C
616=BF	6	0719	11855	RUSS	RL	HA	250	1516	301	47	47.03N	129.21E	KI	334C	GI	332B	LV	317A	DS 323C AN 291B HL 315C
617=BF	7	0717	11855	RUSS	RL	HA	250	1266	362	47	49.35N	134.47E	PS	333B	AL	338B	LV	317C	HL 316C FE 315B DS 324C
													AN	288C					
618=BF	10	0711	11855	RUSS	RL	HA	250	1363	334	47	49.40N	132.66E	LV	319B	PS	335B	KI	329C	GI 329B FE 316B HL 315C
													AN	291C	DS	323B			
619=BF	8	0710	11885	RUSS	RL	L7	100	0	0	0	49.62N	135.59E	AN	289C	HL	316B			
620=BF	6	1811	11915	RUSS	DW			6024	561	53	50.81N	138.58E	AN	289D	LV	318B	DS	320C	
621=BF	7	1613	11915	RUSS	DW			5661	377	52	53.86N	142.61E	LV	318D	GI	328C	DS	325B	AN 289C
622=BF	7	2312	11915	RUSS	RL	G4	250	4493	113	56	56.12N	149.88E	LV	319C	FE	314C	AN	288A	
623=BF	9	0211	11915	RUSS	RL	P1	250	1161	306	51	50.54N	142.36E	AN	285B	LV	319C	GI	325D	HL 317C
624=BF	4	0211	11935	RUSS	RL	HA	250	0	0	0	42.29S	66.54E	AN	294C	FE	313A			
625=BF	4	0308	11935	RUSS	RL	HA	250	10685	399	39	40.61N	123.29E	FE	313A	LV	316C	AN	293C	
626=BF	4	0501	11935	RUSS	RL	HA	250	3278	148	80	60.76N	174.49E	LV	322C	DS	325B	FE	313A	
627=BF	6	0510	11935	RUSS	RL	HA	250	788	200	47	46.82N	129.16E	LV	321C	HL	312B	GI	343C	FE 314A DS 326B AN 289C
													LV	321B	HL	313B	GI	329C	FE 314A DS 326B AN 290B
628=BF	6	0240	11935	RUSS	RL	HA	250	9459	482	38	39.82N	123.77E	LV	315C	FE	313B	AN	289B	
629=BF	6	0411	11935	RUSS	RL	HA	250	0	0	0	0.00N	0.00E	lv	318C	fe	313A	an	298B	
630=BF	6	0640	11935	RUSS	RL	HA	250	1141	293	49	49.00N	128.59E	LV	321C	HL	315B	GI	332D	FE 319B DS 326A AN 292B
631=BF	7	0440	11935	RUSS	RL	HA	250	1010	252	50	48.95N	133.35E	LV	320C	HL	315B	FE	313A	DS 325B AN 291B
632=BF	7	0311	11935	RUSS	RL	HA	250	3214	84	62	59.15N	155.36E	LV	318C	AN	290A	AN	293C	LV 321C
633=BF	7	0510	11935	RUSS	RL	HA	250	1032	241	49	49.30N	133.80E	LV	318C	HL	316C	FE	313B	DS 325B AN 290B LV 318C

634=BF	8	0610	11935	RUSS	RL	HA	250	1647	430	49	46.34N	130.46E	HL 315C	AN 290B				
635=BF	8	0410	11935	RUSS	RL	HA	250	3151	91	58	57.29N	152.82E	LV 315C	HL 312C	FE 313B	AN 289C	DS 326B	
636=BF	8	0210	11935	RUSS	RL	HA	250	0	0	0	42.40N	123.76E	LV 320C	AN 289B	AN 288A	LV 319C		
637=BF	8	0041	11935	RUSS	RL	G9	50	0	0	0	22.77S	83.13E	FE 313C	AN 291C				
638=BF	9	0610	11935	RUSS	RL	HA	250	1493	408	49	47.72N	133.37E	LV 318C	HL 313C	GI 323C	FE 312B	DS 325C	AN 290C
639=BF	9	0046	11935	RUSS	RL	G9	50	0	0	0	56.91N	150.40E	LV 320C	AN 289B				
640=BF	9	0340	11935	RUSS	RL	HA	250	0	0	0	0.00N	0.00E	lv 317C	an 298A	gi 290			
641=BF	10	0510	11935	RUSS	RL	HA	250	1376	192	45	48.79N	134.32E	FE 314C	AN 289A	LV 320C	HL 314C	GI 324C	DS 325C
642=BF	10	0111	11935	RUSS	RL	G9	50	0	0	0	58.93N	150.68W	FE 312C	AN 189B				
643=BF	5	0541	11970	RUSS	RL	G3A	250	1102	369	50	46.16N	130.88E	HL 312B	FE 313B	AN 289B			
644=BF	5	0617	11970	RUSS	RL	G3A	250	997	212	32	26.59S	74.15E	LV 321C	GI 24C	FE 313C	DS 326B	AN 290B	
645=BF	8	0540	11970	RUSS	RL	G3A	250	977	190	46	48.82N	133.05E	HL 315B	LV 316C	DS 326B	AN 290A	FE 313B	
646=BF	7	2213	11970	RUSS	RL	P6	250	0	0	0	61.74N	153.85W	FE 318C	AN 289A				
647=BF	9	1142	11970	RUSS	RL	HA	250	1222	513	51	51.64N	135.11E	LV 319C	LR 342B	KI 328C	HL 319C	FE 318C	DS 320C
													AL 335C					
648=BF	9	2216	11970	RUSS	RL	P6	250	0	0	0	36.39S	78.23E	AN 287B	GI 31D				
649=BF	10	1346	11970	RUSS	RL	HA	250	0	0	0	50.15N	136.42E	AN 289C	AL 334C				
650=BF	11	0610	15130	RUSS	RL	P6	250	3680	445	23	12.71S	87.44E	DS 328C	lv 348C	KI 339B	AN 290B	gi 319C	FE 316B
651=BF	11	0012	15130	RUSS	RL	G1B	250	0	0	0	62.84N	174.06W	FE 316C	AN 289A				
652=BF	12	0110	15130	RUSS	RL	G1B	250	6060	173	47	51.06N	136.37E	FE 315B	LV 318C	DS 324C	AN 290A		
653=BF	12	0412	15130	RUSS	RL	P6	250	1370	184	46	49.45N	135.05E	FE 314B	LV 318D	HL 315C	AN 289A	DS 327B	
654=BF	12	0740	15130	RUSS	RL	P6	250	1259	245	52	52.25N	140.02E	LV 323C	KI 325C	GI 323C	FE 313A	DS 325B	AN 291C
													HL 318C					
655=BF	11	1139	15130	RUSS	RL	P6	250	0	0	0	43.46N	129.45E	LV 315D	VB 338C				
656=BF	11	1010	15130	RUSS	RL	P6	250	4345	137	73	61.03N	172.06E	KI 336C	DS 324C	VB 335C	AN 286C		
657=BF	13	0641	15130	RUSS	RL	P6	250	1594	442	50	49.11N	131.60E	FE 316B	HL 315C	DS 327C	AN 290C		
658=BF	13	0411	15130	RUSS	RL	P6	250	1619	40	105	61.79N	154.40W	AN 288C	FE 318C	GI 331D	KI 328C		
659=BF	12	1040	15130	RUSS	RL	P6	250	1475	106	76	60.79N	179.50E	LV 321C	FE 312C	DS 328C	AN 282C		
660=BF	13	0110	15130	RUSS	RL	G1B	250	0	0	0	49.60N	126.71E	FE 318B	HL 316C				
661=BF	13	0810	15130	RUSS	RL	P6	250	1509	322	51	49.93N	133.53E	HL 315C	KI 332C	DS 326A	FE 313B	AN 289C	LV 320C
662=BF	14	0311	15130	RUSS	RL	P6	250	5083	185	55	55.29N	146.27E	LV 320D	KI 328C	FE 314C	AN 289C	DS 324B	AN 289C
													FE 314A					
663=BF	14	1010	15130	RUSS	RL	P6	250	0	0	0	56.50N	147.62E	GI 327C	AN 290C				
664=BF	15	0340	15130	RUSS	RL	P6	250	0	0	0	62.55N	162.09W	FE 317C	AN 289B				
665=BF	14	0946	15130	RUSS	RL	P6	250	5448	547	64	59.11N	156.14E	LV 321D	GI 326C	FE 315C			
666=BF	16	0910	15130	RUSS	RL	P6	250	0	0	0	41.08N	125.08E	DS 322A	AN 289C				
667=BF	16	0540	15130	RUSS	RL	P6	250	1701	73	79	61.97N	177.89E	LV 319C	KI 328C	gi 151C	FE 317B	DS 326B	AN 287B
668=BF	16	0146	15130	RUSS	RL	G1B	250	1185	30	106	61.94N	155.10W	KI 326C	GI 322B	FE 318B	AN 290B		
669=BF	17	0940	15130	RUSS	RL	P6	250	672	56	99	61.90N	158.83W	LV 314D	gi 149C	FE 317B	AN 284C	KI 326C	gi 149C
													FE 317B	KI 326C				
670=BF	17	0110	15130	RUSS	RL	G1B	250	0	0	0	61.73N	153.82W	FE 318B	AN 289A				
671=BF	13	0840	15290	RUSS	RL	G15	250	3377	192	66	59.76N	159.67E	DS 326B	LV 322C	FE 313B	AN 290C		
672=BF	14	0610	15290	RUSS	RL	G15	250	1343	231	50	52.00N	137.57E	FE 316A	DS 327B	HL 317C	AN 288B		
673=BF	15	0510	15290	RUSS	RL	G15	250	0	0	0	0.00N	0.00E	an 289B	hl 318C	fe 318B			
674=BF	16	1240	15290	RUSS	RL	G15	250	1067	384	56	49.77N	133.86E	HL 316B	FE 314B	AN 290C	DS 326B		
675=BF	16	0710	15290	RUSS	RL	G15	250	0	0	0	48.75N	127.96E	HL 315B	DS 326B				
676=BF	17	0712	15290	RUSS	RL	G15	250	1505	380	51	49.62N	133.67E	LV 318C	KI 327C	HL 315C	FE 317B	DS 326B	AN 288C
677=BF	11	0146	15355	RUSS	RL	G2B	250	0	0	0	31.32S	77.53E	GI 20C	AN 292A				
678=BF	12	0448	15355	RUSS	RL	G2B	250	890	170	48	50.83N	137.08E	GI 326C	FE 317B	lv 359D	DS 327C	AN 289A	HL 317B
679=BF	12	0213	15355	RUSS	RL	G2B	250	1023	331	52	48.92N	133.54E	HL 315B	LV 316D	gi 18D	AN 289B	FE 316B	
680=BF	14	0216	15355	RUSS	RL	G2B	250	0	0	0	0.00N	0.00E	an 290C	hl 316B	fe 136B	gi 25C		
681=BF	15	0910	15370	RUSS	RL	HB	250	0	0	0	55.59N	142.13E	AN 292C	DS 326B				
682=BF	12	1440	15380	RUSS	RL	P3+	500	0	0	0	0.00N	0.00E	lv 315C	ki 327C	gi 143C	ds 326B		
683=BF	14	1440	15380	RUSS	RL	P3+	500	0	0	0	57.50N	152.10E	DS 325B	AN 289A				
684=BF	15	1710	15405	RUSS	DW			1502	441	59	50.87N	137.80E	LV 315B	HL 318C	FE 314B	DS 326B		
685=BF	11	0740	15445	RUSS	RL	P5	250	7688	384	42	45.90N	129.42E	DS 324C	LV 317C	FE 313B	AN 290B		
686=BF	11	0049	15445	RUSS	RL	G14	250	0	0	0	31.61S	78.26E	GI 17D	AN 291C				
687=BF	12	0840	15445	RUSS	RL	P5	250	3505	224	54	54.83N	145.44E	LV 319B	FE 313B	DS 325B	AN 289B		
688=BF	13	0714	15445	RUSS	RL	P5	250	1535	398	50	48.77N	133.11E	DS 326B	FE 313B	HL 314C	AN 289C	LV 321C	



689=BF	13	0617	15445	RUSS	RL	P5	250	1601	408	46	47.08N	130.37E	FE	315C	AN	290B	HL	313C				
690=BF	13	1217	15445	RUSS	RL	P5	250	0	0	0	50.09N	135.33E	LV	318C	GI	328C						
691=BF	13	0910	15445	RUSS	RL	P5	250	2073	164	70	60.02N	165.02E	LV	318C	AN	287C	DS	326A	KI	326C		
692=BF	14	0614	15445	RUSS	RL	P5	250	1291	218	52	52.91N	138.99E	HL	317C	FE	316A	LV	325C	AN	288B	DS 327B	
693=BF	16	0740	15445	RUSS	RL	P5	250	0	0	0	4.76N	70.67E	VB	45D	GI	15C						
694=BF	16	1118	15445	RUSS	RL	P5	250	0	0	0	0.00N	0.00E	gi	151C	ds	321B						
695=BF	16	0640	15445	RUSS	RL	P5	250	3609	235	63	58.80N	156.94E	LV	320C	KI	324C	DS	326B	AN	289C		
696=BF	17	0610	15445	RUSS	RL	P5	250	0	0	0	0.00N	0.00E	ki	325B	fe	315B						
697=BF	17	0710	15445	RUSS	RL	P5	250	1180	148	32	24.80S	75.40E	LV	318D	GI	19C	FE	317B	DS	326A	AN 286C	
698=BF	18	0714	17725	RUSS	RL	G10	50	11535	695	39	40.52N	123.10E	DS	323B	LV	315D	AN	290C				
699=BF	19	0910	17725	RUSS	RL	G10	50	873	256	54	52.73N	139.48E	AN	290B	DS	323C	HL	320B	AN	290C		
700=BF	19	0542	17725	RUSS	RL	G10	50	0	0	0	0.00N	0.00E	lv	316C	gi	149C						
701=BF	21	0540	17725	RUSS	RL	G10	50	0	0	0	0.00N	0.00E	hl	314D	gi	346D	fe	312C				
702=BF	20	0914	17725	RUSS	RL	G10	50	1411	356	49	50.36N	135.53E	gi	4D	AN	290B	DS	322C	HL	317C		
703=BF	21	0610	17725	RUSS	RL	G10	50	2934	569	46	46.93N	125.29E	LV	319B	HL	315D	GI	343D	FE	316B	DS 326C	
704=BF	21	1110	17725	RUSS	RL	G10	50	0	0	0	52.84N	145.89E	VB	334C	HL	321B						
705=BF	21	0910	17725	RUSS	RL	G10	50	0	0	0	61.50N	152.62W	FE	318C	AN	286C						
706=BF	21	0712	17725	RUSS	RL	G10	50	1320	285	59	54.52N	154.38E	LV	320B	HL	319D	GI	330D	AN	281C		
707=BF	22	0646	17725	RUSS	RL	G10	50	1212	308	51	51.62N	141.29E	HL	319C	GI	330C	AN	287B				
708=BF	23	1010	17725	RUSS	RL	G10	50	0	0	0	50.25N	146.89E	HL	318B	LV	314C						
709=BF	24	0940	17725	RUSS	RL	G10	50	968	383	61	50.15N	138.54E	LV	314C	HL	317B	FE	310C	DS	323C	AN 289C	
710=BF	24	0540	17725	RUSS	RL	G10	50	918	323	55	51.24N	138.11E	LV	320D	HL	318B	AN	289B				
711=BF	24	0747	17725	RUSS	RL	G10	50	1406	365	48	46.81N	135.08E	LV	317C	HL	312C	DS	323B	AN	286B		
712=BF	18	0443	17895	RUSS	RL	P1	250	0	0	0	52.49N	141.92E	FE	313C	AN	288A						
713=BF	19	0511	17895	RUSS	RL	P1	250	0	0	0	0.00N	0.00E	gi	152C	an	288C						
714=BF	19	0416	17895	RUSS	RL	P1	250	0	0	0	0.00N	0.00E	ki	16C	an	288C						
715=BF	9	0012	11885	TB	RL	HA	250	0	0	0	58.23N	157.83E	AN	287C	LV	320C						
716=BF	18	1818	9565	UKR	RL	L7	100	1407	192	45	49.36N	133.91E	LV	316C	HL	316C	FE	313C	DS	323D	AN 290A	
717=BF	19	1910	9565	UKR	RL	L7	100	1323	237	50	51.19N	137.74E	LV	317C	HL	318C	FE	314A	AN	289B		
718=BF	21	1910	9565	UKR	RL	L7	100	2760	175	58	57.14N	151.94E	GI	326A	FE	314A	DS	324C	AN	288C		
719=BF	21	1810	9565	UKR	RL	L7	100	6555	251	59	56.19N	149.05E	KI	327B	LV	319C	FE	314A				
720=BF	22	1840	9565	UKR	RL	L7	100	1928	206	57	54.91N	151.44E	LV	316B	KI	324C	GI	323A	FE	309C	DS 322A AN 289C	
721=BF	23	1842	9565	UKR	RL	L7	100	8320	357	51	53.36N	140.82E	FE	314B	DS	325C	AN	290C	LV	319D		
722=BF	24	1840	9565	UKR	RL	L7	100	1364	374	54	53.04N	138.22E	FE	317B	AN	290C	LV	317D	HL	320C	gi 60D	
723=BF	4	1635	11885	UKR	RL	P5	250	2011	121	78	62.15N	172.09E	LV	324B	FE	315B	AN	290C				
724=BF	6	1740	11885	UKR	RL	P5	250	2576	233	63	57.98N	157.05E	AN	287C	LV	320B	DS	324B				
725=BF	7	2016	11885	UKR	RL	P5	250	8922	614	47	46.96N	129.15E	LV	318B	DS	324B	AN	291D				
726=BF	7	2216	11885	UKR	RL	P5	250	0	0	0	61.37N	151.99W	FE	318C	AN	283B						
727=BF	8	2211	11885	UKR	RL	P5	250	0	0	0	55.26N	147.75E	DS	324B	AN	288B						
728=BF	8	2014	11885	UKR	RL	P5	250	3362	147	71	60.55N	169.58E	DS	323B	AN	286C	FE	316C				
729=BF	9	2217	11885	UKR	RL	P5	250	0	0	0	0.00N	0.00E	hl	315B	gi	32C	an	289A				
730=BF	11	0416	15380	UKR	RL	P3	250	0	0	0	48.79N	134.36E	HL	315C	AN	289B						
731=BF	15	2141	15380	UKR	RL	P3	250	1604	1015	4	21.20N	55.45E	LR	40C	LV	17C	KI	26C	HL	318B	an 287B	
732=BF	17	2246	15380	UKR	RL	P3	250	1391	336	48	48.70N	135.91E	HL	315C	AN	288B	FE	312B				
733=BF	16	2243	15380	UKR	RL	P3	250	0	0	0	48.76N	135.73E	AN	288B	HL	315B						
734=BL	4	1520	11905	RUSS	DW			0	0	0	37.83N	88.85E	MU	70D	KR	69B						
735=BL	9	1610	11905	RUSS	DW			0	0	0	0.00N	0.00E	mu	60D	bl	80C	it	80B	bk	0		
736=BL	4	2331	11970	RUSS	RL	P6	250	0	0	0	0.00N	0.00E	n3	165B	n0	84B	bk	74B				
737=BL	18	1842	17750	RUSS	RL	HC	250	0	0	0	45.80N	64.52E	N2	109C	N0	84B						
738=BL	17	0631	21510	RUSS	RL	HD	250	0	0	0	0.00N	0.00E	bd	74A	bk	0	kr	78B	bl	90C		
739=BL	5	2101	11885	UKR	RL	P5	250	0	0	0	53.18N	7.27E	BD	72B	BK	0						
740=BL	16	1831	15380	UKR	RL	P3	250	781	73	115	48.76N	53.26E	N0	85B	BD	75A	bk	0	bk	0	KR 79B BL 85B	
													KO	70C	BK	74B	BK	74B				
741=BM	11	1641	15370	TB	RL	HB	250	5988	1512	1	33.64N	68.26E	VB	27D	FE	353C	LV	345D				
742=BN	19	0340	9520	RUSS	RL	L1	100	0	0	0	0.00N	0.00E	ki	34C	fe	10C	an	358C				
743=BN	9	1101	11770	RUSS	RL	B6	100	0	0	0	56.97N	41.56E	N2	125B	N0	80C						
744=BN	10	0313	11915	RUSS	RL	P1	250	0	0	0	42.96N	35.30E	GI	32C	AN	356C						
745=BN	17	0210	15445	RUSS	RL	G14	250	0	0	0	0.00N	0.00E	gi	13C	fe	12C	an	355D				
746=BN	24	0417	17760	RUSS	RL	L3	100	0	0	0	75.67N	155.10W	LV	348D	AN	355D						
747=BR	6	1931	6105	RUSS	RL	L9	20	0	0	0	0.00N	0.00E	bk	0	bd	65B	bl	60D				



801=DK	8	1635	11915	RUSS	DW		0	0	0	58.47N	7.27E	BK	0	VB	35C				
802=DK	9	1511	11915	RUSS	DW		1080	28	179	53.39N	7.27E	VB	38C	SS	45D	BK	0		
803=DK	10	1510	11915	RUSS	DW		275	48	102	49.40N	35.54E	MU	77B	IT	95B	KO	74B		
804=DK	6	0817	11970	RUSS	RL	HA	250	0	0	47.70N	64.62W	LR	42C	BE	42B				
805=DK	8	0940	11970	RUSS	RL	HA	250	0	0	48.61N	29.14E	VB	39C	SS	42C				
806=DK	14	0801	21745	RUSS	RL	G18	10	0	0	90.00N	90.00W	RO	0C	BK	0				
807=DK	7	0131	11885	TB	RL	HA	250	0	0	0.00N	0.00E	n1	110C	bk	0	n0	85B		
808=DK	24	0331	9625	UKR	RL	P4	250	0	0	90.00N	90.00W	RO	0C	BK	0				
809=DK	11	0509	15380	UKR	RL	P3	250	154	48	109	47.32S	172.73W	BK	0	MU	75B	KO	75B	
810=DM	12	0301	15370	DARI	RFE	B7	100	0	0	52.94N	7.27E	BD	75B	BK	0				
811=DM	24	1350	17770	PASH	RFE	G3A	250	0	0	48.26S	164.83E	BL	88B	IT	80C				
812=DM	12	0201	15370	RUSS	RL	B7	100	828	368	126	46.65N	65.82E	RD	75C	bk	0	GI	25C	AN 330B
813=DM	16	1031	21500	RUSS	RL	G1A	250	569	244	154	38.33S	172.73W	RO	50C	BK	0	BK	0	SS 38C
814=DM	17	0833	21530	RUSS	RL	G8	250	1191	125	113	46.94N	49.24E	bk	0	kr	73C	BL	90C	IT 88C
815=DN	14	0042	15445	RUSS	RL	G14	250	1700	712	73	48.53N	140.42E	FE	310C	LV	315D	HL	315C	MU 80C
816=DN	23	1246	17895	RUSS	RL	P1+	500	0	0	0	43.36N	55.85E	KR	84B	KO	80D			KO 75C
817=DP	17	0319	15340	AZ	RL	L4	100	0	0	0	60.40N	42.09E	LV	8C	AN	353B			
818=DP	17	2112	15130	BR	RL	G15	250	0	0	0	58.09N	31.82E	FE	14C	GI	25C			
819=DP	6	2346	11935	CZEC	RFE	G9	50	5918	812	180	43.62N	39.51E	LV	19D	AN	353B	FE	11C	
820=DP	9	2341	11935	CZEC	RFE	G9	50	1689	688	146	53.13N	39.16E	LR	29C	AL	36C	BE	40C	AN 353C
821=DP	18	0301	9615	PASH	DW			109	46	133	56.60N	36.36E	N0	87B	N1	118B	BD	66C	N2 133B
													RO	30C					SS 45D
													BK	0	BD	62C			AN 355C
822=DP	17	2331	7255	RUSS	RL	G4B	250	0	0	0	54.02N	7.27E	N2	130C	AN	356C			
823=DP	18	2231	9505	RUSS	RL	G3A	250	0	0	0	58.68N	36.68E	LR	19B	AN	355C			
824=DP	19	2340	9505	RUSS	RL	G3A	250	0	0	0	71.06N	41.43E	FE	11C	AN	356C			
825=DP	24	2340	9505	RUSS	RL	G3A	250	0	0	0	59.41N	36.77E	N1	125B	N0	95C			
826=DP	22	1401	9520	RUSS	RL	L1	100	0	0	0	52.62N	37.82E	n2	135C	n0	90B	gi	310C	
827=DP	22	1731	9520	RUSS	RL	L1	100	0	0	0	0.00N	0.00E	BE	36B	AL	44C			
828=DP	23	0019	9625	RUSS	RL	P4	250	0	0	0	57.66N	49.15W	ro	0C	n1	120C	n0	88C	
829=DP	21	0201	9660	RUSS	RL	HC	250	0	0	0	0.00N	0.00E	RO	0C	BK	0			
830=DP	24	0131	9750	RUSS	RL	P2	250	0	0	0	90.00N	90.00W	VB	34C	AL	27B			
831=DP	8	1716	11875	RUSS	RL	L5	100	0	0	0	28.65N	63.84E	N2	133B	N1	120B			
832=DP	10	2001	11875	RUSS	RL	L6	100	0	0	0	53.50N	40.00E	N1	150B	N0	85B			
833=DP	8	1131	11885	RUSS	RL	L7	100	0	0	0	58.62N	20.64E	N3	165B	N2	145B	n1	120B	N0 85B
834=DP	10	1201	11885	RUSS	RL	L7	100	90	46	148	57.47N	30.59E	N1	120B	N0	80C			
835=DP	10	1301	11885	RUSS	RL	L7	100	0	0	0	58.38N	32.98E	N1	120B	N0	80C			
836=DP	5	0140	11935	RUSS	RL	G9	50	0	0	0	57.01N	47.90W	VB	29B	LR	37D			
837=DP	6	0611	11935	RUSS	RL	HA	250	0	0	0	51.01N	19.23E	VB	40C	SS	41C			
838=DP	7	0311	11935	RUSS	RL	HA	250	2011	620	155	55.05N	36.79E	KI	23C	GI	30C	DS	18B	AN 355C
839=DP	8	0601	11935	RUSS	RL	HA	250	0	0	0	0.00N	0.00E	n0	90C	n2	150C	ss	45C	AL 28C
840=DP	9	0417	11935	RUSS	RL	HA	250	0	0	0	0.00N	0.00E	lv	317D	gi	28C	an	355D	
841=DP	10	0248	11935	RUSS	RL	HA	250	0	0	0	0.00N	0.00E	gi	38C	al	29A	vb	29C	
842=DP	17	0441	15130	RUSS	RL	P6	250	0	0	0	0.00N	0.00E	vb	30C	ki	327C	an	354C	
843=DP	15	1444	15290	RUSS	RL	G15	250	1002	456	152	56.27N	35.05E	AL	28C	SS	37C	PS	22C	LV 18C
													GI	23D	AN	355B	DS	6C	FE 25C
													N1	120B	N0	90C			
844=DP	11	1131	15340	RUSS	RL	L4	100	0	0	0	53.93N	39.47E	N1	135B	N0	100C			
845=DP	16	0931	15370	RUSS	RL	HB	250	0	0	0	53.24N	31.50E	AL	29B	VB	40C			
846=DP	11	1242	15380	RUSS	RL	P3+	500	0	0	0	14.46N	67.82E	BE	38B	VB	33C	BK	0	
847=DP	15	1010	15445	RUSS	RL	P5	250	436	68	180	62.77N	7.27E	n0	88C	n1	0			
848=DP	24	0643	17750	RUSS	RL	HC	250	0	0	0	0.00N	0.00E	VB	30B	LR	34D	BE	37B	
849=DP	20	0942	17760	RUSS	RL	L3	100	28626	469	116	61.15N	22.36E	ro	310C	en	93B			
850=DP	21	0801	17770	RUSS	RL	G1A	250	0	0	0	0.00N	0.00E	n3	155C	n2	145C	n0	100C	
851=DP	20	0742	17895	RUSS	RL	P1+	500	0	0	0	0.00N	0.00E	bk	0	N3	210C	N2	200C	N0 190B
852=DP	24	0731	17895	RUSS	RL	P1+	500	12150	325	6	18.09N	1.12W	N1	150B	N0	95B			it 80D
853=DP	16	0731	21510	RUSS	RL	HD	250	0	0	0	56.99N	21.90E	N2	133B	N3	149B			ko 65C
854=DP	18	0505	9625	UKR	RL	P4	250	0	0	0	51.89N	41.26E	AN	355C	GI	35C	FE	14C	
855=DP	9	2216	11885	UKR	RL	P5	250	3959	1030	168	36.83N	37.29E	BK	0	AN	356B			
856=DP	10	2201	11885	UKR	RL	P5	250	0	0	0	85.65N	172.73W	FE	14C	DS	16C	AN	355D	
857=DP	24	1610	17895	UKR	RL	P4	250	4365	920	165	58.44N	35.27E	fe	314C	an	328B			
858=DR	12	0249	15445	RUSS	RL	G14	250	0	0	0	0.00N	0.00E							





970=GD	9	1240	11885	RUSS	RL	L7	100	1162	305	56	57.82N	140.54E	LV 318C	HL 325C	FE 323C	DS 328B	AN 297C	AL 334B
971=GD	10	1210	11885	RUSS	RL	L7	100	1302	157	56	59.03N	146.91E	GI 326D	FE 317A	DS 325C	AN 296B	AL 334A	LV 319C
972=GD	7	1540	11905	RUSS	DW			0	0	0	46.40S	59.83E	FE 327B	AN 297C				
973=GD	4	2340	11970	RUSS	RL	P6	250	664	222	72	61.18N	157.88E	HL 334B	FE 320D	AN 293C			
974=GD	4	0612	11970	RUSS	RL	G3A	250	0	0	0	58.91N	112.67E	LV 334C	HL 327B				
975=GD	5	0646	11970	RUSS	RL	G3A	250	827	212	60	57.23N	143.61E	LV 321B	HL 326B	FE 316B	DS 327B	AN 294B	gi 18C
976=GD	4	0010	11970	RUSS	RL	P6	250	1330	471	66	56.70N	143.77E	FE 316B	LV 323C	HL 325C			
977=GD	6	0641	11970	RUSS	RL	G3A	250	792	203	63	59.24N	146.99E	FE 319C	DS 326C	gi 287C	LV 321C	AN 295B	HL 329B
978=GD	5	1140	11970	RUSS	RL	HA	250	793	246	58	56.98N	143.05E	AL 337B	HL 326B	AN 293B			
979=GD	6	0140	11970	RUSS	RL	P6	250	782	109	58	58.03N	145.47E	LV 324C	HL 327B	FE 316A	AN 294A		
980=GD	6	0036	11970	RUSS	RL	P6	250	0	0	0	63.86N	176.61W	LV 327C	AN 294B				
981=GD	5	2331	11970	RUSS	RL	P6	250	981	133	66	60.67N	155.91E	LV 322C	HL 333C	FE 316A	AN 294B		
982=GD	5	2240	11970	RUSS	RL	P6	250	927	143	68	60.82N	158.62E	LV 322C	HL 334C	FE 317B	AN 292B		
983=GD	6	2248	11970	RUSS	RL	P6	250	0	0	0	43.93N	124.04E	LV 318D	AN 292B				
984=GD	7	0216	11970	RUSS	RL	P6	250	0	0	0	34.43N	114.00E	LV 317C	AN 293A				
985=GD	7	1110	11970	RUSS	RL	HA	250	1146	194	63	61.94N	145.89E	AL 333C	LV 318C	KI 327B	HL 328C	FE 329C	AN 301B
986=GD	7	0913	11970	RUSS	RL	HA	250	1577	462	113	55.13N	157.90E	LV 318D	HL 327B	GI 320D			
987=GD	8	0742	11970	RUSS	RL	G3A	250	904	243	59	57.69N	140.39E	DS 329C	AN 296B	HL 326B	LV 321C	FE 320C	
988=GD	8	0010	11970	RUSS	RL	P6	250	14965	475	30	26.95N	106.03E	FE 319A	AN 293B	LV 317C	DS 325C		
989=GD	8	0640	11970	RUSS	RL	G3A	250	7137	367	33	11.37S	86.23E	LV 318C	hl 327B	FE 319B	gi 310C	DS 320A	AN 292B
990=GD	7	2310	11970	RUSS	RL	P6	250	0	0	0	42.40N	123.76E	LV 317C	AN 291B				
991=GD	8	0240	11970	RUSS	RL	P6	250	10258	381	44	50.43N	128.98E	LV 320C	FE 320C	AN 294B			
992=GD	8	1240	11970	RUSS	RL	HA	250	0	0	0	58.31N	134.74E	HL 326B	AN 300C				
993=GD	9	0814	11970	RUSS	RL	HA	250	1284	327	61	58.69N	142.98E	LV 323C	KI 328C	HL 327C	DS 320C	AN 298C	
994=GD	9	0642	11970	RUSS	RL	G3A	250	818	219	60	57.44N	144.27E	LV 324C	FE 318B	AN 293B	HL 326B		
995=GD	8	2310	11970	RUSS	RL	P6	250	0	0	0	61.53N	169.44E	AN 289B	LV 323C				
996=GD	8	2241	11970	RUSS	RL	P6	250	1238	142	66	59.62N	161.19E	LV 321B	HL 334D	GI 333D	AN 288B		
997=GD	9	0242	11970	RUSS	RL	P6	250	1127	122	56	57.11N	145.85E	LV 322C	HL 326C	AN 292A	gi 27D		
998=GD	9	0011	11970	RUSS	RL	P6	250	1849	713	16	29.96S	79.05E	lv 321B	GI 10D	FE 318C	AN 288B		
999=GD	10	0810	11970	RUSS	RL	HA	250	658	189	61	56.25N	152.05E	LV 319C	FE 316B	HL 326B	DS 325C	AN 286B	
1000=GD	10	0040	11970	RUSS	RL	P6	250	0	0	0	0.00N	0.00E	an 294A	hl 326B	gi 23C			
1001=GD	10	0640	11970	RUSS	RL	G3A	250	865	221	60	57.87N	142.12E	AN 295B	KI 330C	DS 327B	HL 326B	FE 320C	LV 325B
1002=GD	11	1020	15130	RUSS	RL	P6	250	0	0	0	59.40N	154.63E	HL 331D	VB 335C				
1003=GD	12	0910	15130	RUSS	RL	P6	250	0	0	0	19.23S	74.03E	LV 319C	DS 344C				
1004=GD	13	1340	15130	RUSS	RL	P6	250	970	208	70	61.51N	158.24E	FE 320C	HL 335C	LV 318C	AN 294C		
1005=GD	14	1310	15130	RUSS	RL	P6	250	0	0	0	62.03N	154.74E	HL 334D	DS 329C				
1006=GD	4	2144	11885	UKR	RL	P5	250	0	0	0	19.76S	82.90E	AN 294C	FE 316C				
1007=GD	4	1643	11885	UKR	RL	P5	250	1244	90	91	64.18N	179.43W	LV 327A	FE 320B	AN 295C			
1008=GD	5	1740	11885	UKR	RL	P5	250	926	130	71	62.13N	160.22E	LV 326B	AN 294B	HL 335C	FE 319B		
1009=GD	5	1618	11885	UKR	RL	P5	250	2590	104	87	64.25N	176.82E	FE 319B	DS 327C	LV 327B	AN 296C		
1010=GD	5	2140	11885	UKR	RL	P5	250	1004	212	70	61.52N	156.22E	LV 326B	HL 333C	FE 319C	AN 294C		
1011=GD	6	1747	11885	UKR	RL	P5	250	9897	387	37	42.89N	116.13E	FE 320A	LV 321B	AN 295C	DS 329C		
1012=GD	6	1516	11885	UKR	RL	P5	250	2034	156	77	63.96N	166.11E	AL 332C	LV 324C	DS 324C	AN 298C	GI 330C	KI 323C
1013=GD	7	1510	11885	UKR	RL	P5	250	1018	76	91	66.23N	174.87E	PS 337C	LV 329D	KI 332C	GI 323C	FE 326B	DS 328B
1014=GD	7	1716	11885	UKR	RL	P5	250	1182	71	89	64.51N	177.44E	AN 303B	AL 333B				
1015=GD	7	1816	11885	UKR	RL	P5	250	1596	113	83	64.32N	170.42E	LV 327A	GI 331C	FE 324C	DS 327B	AN 296C	LV 327B
1016=GD	8	1641	11885	UKR	RL	P5	250	0	0	0	0.00N	0.00E	KI 332C	FE 324C	DS 327B	AN 297C		
1017=GD	8	1810	11885	UKR	RL	P5	250	3939	135	80	63.50N	170.91E	LV 326A	GI 329C	FE 324B	AN 296C		
1018=GD	8	1511	11885	UKR	RL	P5	250	800	137	59	61.63N	149.07E	fe 323C	an 295A	ki 330C			
1019=GD	9	1510	11885	UKR	RL	P5	250	1032	172	63	60.32N	148.73E	VB 334C	KI 327C	fe 323B	DS 326B	AN 295C	
1020=GD	9	1610	11885	UKR	RL	P5	250	0	0	0	0.00N	0.00E	AL 335A	AN 295C	VB 340B	PS 342C	LV 317B	FE 319C
1021=GD	10	1811	11885	UKR	RL	P5	250	692	132	65	59.69N	155.08E	DS 326C	AN 301B	AL 335A			
1022=GD	10	1610	11885	UKR	RL	P5	250	1277	197	49	54.85N	134.13E	VB 338C	LV 322C	FE 324C	DS 328C	AL 335C	LV 323B
1023=GD	6	1849	11895	hung	RFE	G1B	250	1304	262	59	59.35N	141.70E	KI 330C	HL 330C	gi 152C	FE 324C	DS 329B	AN 295B
													fe 324C	an 295B				
													LV 317C	HL 329C	FE 322C	DS 327B	AN 290C	HL 329C
													gi 151C	FE 324B	DS 327B	AN 290B		
													FE 323B	DS 338C	AN 295B	VB 338D	LV 324C	KI 329C
													HL 317C	FE 324B	AN 294B	AL 335B		
													DS 328C	LV 325C	an 331C	HL 328C	FE 320A	



1083=GS	17	1540	15405	RUSS	DW		2030	397	26	18.90S	80.54E	LV	321C	ki	327C	GI	3C	FE	318A	DS	327C	AN	291C	
1084=GS	11	0411	15380	UKR	RL	P3	250	0	0	2.07S	98.58E	AN	288B	SS	44D									
1085=GS	12	0419	15380	UKR	RL	P3	250	0	0	0.00N	0.00E	ds	319C	fe	315A	an	289A							
1086=GS	14	0410	15380	UKR	RL	P3	250	0	0	51.39N	138.46E	LV	318C	AN	289C									
1087=GS	16	0516	15380	UKR	RL	P3	250	0	0	0.00N	0.00E	fe	321C	ds	327B	an	290B							
1088=GU	14	1931	15340	ARM	RL	L4	100	0	0	38.30N	48.33E	N0	108B	BD	93B									
1089=GU	14	1731	15340	AZ	RL	L4	100	0	0	0.00N	0.00E	ro	30C	n2	145C	n1	120C							
1090=GU	8	0201	11875	GEOR	RL	L6	100	571	49	118	45.41N	42.20E	BK	90A	BD	88B	N0	105B	BK	90A				
1091=GU	24	0735	17895	RUSS	RL	P1+	500	12150	325	6	18.09N	1.12W	N3	210C	N2	200C	N0	190B						
1092=GV	19	1314	17630	????	????????????			2921	415	95	58.12N	3.64W	ps	20C	BE	47C	SS	33C	VB	36B				
1093=GV	9	2340	11935	CZEC	RFE	G9	50	1586	692	144	51.34N	38.46E	AN	353C	VB	32C	AL	34B	SS	35C				
1094=GV	19	0805	9520	RUSS	RL	L1	100	0	0	0.00N	0.00E	bl	85B	bd	75B	n0	0	n2	152B					
1095=GV	19	0346	9520	RUSS	RL	L1	100	16932	1078	146	28.12N	54.31E	LR	45C	BE	45C	Al	35C						
1096=GV	19	1031	9520	RUSS	RL	L1	100	0	0	0.00N	0.00E	bd	75B	n2	139C	n0	0							
1097=GV	20	0701	9520	RUSS	RL	L1	100	0	0	53.22N	27.20E	BD	75C	BL	80B									
1098=GV	22	1501	9715	RUSS	DW			0	0	0.00N	0.00E	kr	75B	ko	58B	it	82C							
1099=GV	23	1503	9715	RUSS	DW			0	0	0.00N	0.00E	n2	125C	n3	160C	n0	85C	n1	127B					
1100=GV	22	1631	9715	RUSS	DW			0	0	41.23N	63.63E	N3	125B	N0	90B									
1101=GV	24	0231	9750	RUSS	RL	P2	250	2592	52	99	58.37N	16.32E	N0	90B	VB	35C	LR	36D	BE	42C				
1102=GV	10	0141	11725	RUSS	RL	P5	250	0	0	55.63N	21.76E	VB	35C	SS	36C									
1103=GV	8	0001	11825	RUSS	RL	G3B	250	0	0	54.65N	25.33E	BD	70B	AN	3B									
1104=GV	7	0231	11855	RUSS	RL	G10	50	0	0	0.00N	0.00E	bd	70B	bk	0	fe	19C							
1105=GV	8	1614	11875	RUSS	RL	L5	100	0	0	0.00N	0.00E	vb	40C	n2	136B	n0	85B	bk	0					
1106=GV	10	2340	11875	RUSS	RL	L6	100	0	0	64.10N	20.65E	GI	25D	AN	5D									
1107=GV	6	1531	11915	RUSS	DW			0	0	53.94N	24.59E	MU	50D	KR	70B									
1108=GV	7	1523	11915	RUSS	DW			142	53	130	46.87S	172.62W	BK	0	kr	70B	KO	55B	MU	75C	BK	0		
1109=GV	8	1520	11915	RUSS	DW			356	117	176	46.75S	172.73W	BK	0	MU	65D	BK	0						
1110=GV	5	0641	11970	RUSS	RL	G3A	250	0	0	22.13N	57.77E	GI	24D	AL	35B									
1111=GV	10	1231	11970	RUSS	RL	HA	250	0	0	52.96N	42.33E	N2	130B	N0	90C									
1112=GV	12	1410	15115	RUSS	RL	G2R	250	0	0	0.00N	0.00E	bk	0	ro	40C	bd	71C							
1113=GV	14	0216	15130	RUSS	RL	G1B	250	2435	692	148	51.17N	31.19E	FE	16B	LV	20D	DS	24C	BE	44C				
1114=GV	13	2340	15130	RUSS	RL	G15	250	15042	794	146	31.52N	54.86E	PS	38C	CA	40C	BE	44B	AL	32C				
1115=GV	14	0728	15130	RUSS	RL	P6	250	0	0	53.00N	72.55E	BL	65C	IT	65C									
1116=GV	14	0110	15355	RUSS	RL	G2B	250	1794	323	95	61.35N	10.06W	SS	26C	PS	36C	VB	35C	LR	40C	AL	38B		
1117=GV	14	2314	15355	RUSS	RL	G2B	250	0	0	49.72N	39.22E	LR	37C	AL	33B									
1118=GV	15	0449	15355	RUSS	RL	G2B	250	10189	997	135	49.58N	37.46E	VB	35C	AL	34C	LR	38D						
1119=GV	15	0840	15380	RUSS	RL	P3+	500	0	0	28.98N	61.01E	VB	36C	SS	48C									
1120=GV	11	1501	15405	RUSS	DW			0	0	0.00N	0.00E	n0	110C	bd	75B	ro	0C							
1121=GV	15	1310	15445	RUSS	RL	P5	250	0	0	52.56N	26.75E	MU	60D	KO	60B									
1122=GV	17	0620	15445	RUSS	RL	P5	250	0	0	30.94N	57.91E	VB	37C	LR	38B									
1123=GV	21	1910	17770	RUSS	RL	G3A	250	5211	800	128	49.04N	37.01E	SS	40C	LR	38D	PS	35C	BE	43C				
1124=GV	21	1710	17770	RUSS	RL	G3A	250	1427	496	132	54.17N	24.62E	SS	40C	DS	27C	AL	33C	PS	34C	LR	36D	AL	35C
													FE	21B	SS	40C								
1125=GV	22	2001	17770	RUSS	RL	G3A	250	0	0	0.00N	0.00E	bk	0	ko	53B	it	88A							
1126=GV	23	0516	17770	RUSS	RL	G18	10	0	0	53.18N	23.87E	KO	54C	IT	89B									
1127=GV	11	1713	21510	RUSS	RL	HD	250	6097	621	112	58.85N	6.99E	VB	34C	PS	37C	AL	38C						
1128=GV	12	0931	21530	RUSS	RL	G8	250	139	46	145	53.63N	28.77E	N1	140B	N0	102B	N2	153B						
1129=GV	14	0801	21745	RUSS	RL	G18	10	0	0	0.00N	0.00E	n0	88C	bk	0	bd	72B							
1130=GV	24	0308	9625	UKR	RL	P4	250	0	0	52.43N	28.11E	IT	90C	BL	85C									
1131=GV	10	1605	11885	UKR	RL	P5	250	0	0	0.00N	0.00E	bk	0	ko	53B	kr	85C	bk	75B					
1132=GV	10	1710	11885	UKR	RL	P5	250	0	0	0.00N	0.00E	bk	0	vb	37B	bk	79B							
1133=GV	23	1713	9705	poli	RFE	B3	100	0	0	0.00N	0.00E	n0	0	n2	116C	n1	91A							
1134=GV	10	1910	11770	roma	RFE	G3	250	0	0	62.06N	7.27E	BK	0	AL	35C									
1135=GW	14	1941	15340	ARM	RL	L4	100	0	0	34.08N	57.86E	VB	35C	AN	337D									
1136=GW	24	1901	17760	ARM	RL	L3	100	753	58	180	58.11N	7.27E	BK	0	PS	38C	LR	39C						
1137=GW	19	1401	17760	AZ	RL	L3	100	0	0	0.00N	0.00E	n0	73C	n3	155B	n2	142B							
1138=GW	21	1631	17760	GEOR	RL	L3	100	0	0	39.44S	172.73W	RO	60C	BK	0									
1139=GW	15	0001	15340	RUSS	RL	G15	250	0	0	58.66N	7.27E	N0	100C	BK	0									
1140=HA	22	1301	17750	UZBE	RL	HC	250	0	0	0.00N	0.00E	ro	25C	bd	92B	ko	94B							
1141=HD	9	2046	11865	????	????????????			0	0	0	56.06N	143.13E	LV	321C	FE	316C								





1199=HP	10	1613	11915	RUSS	DW		1157	142	132	34.29N	172.73W	1r	44C	HL	318C	al	8C	BK	0	mu	63B	BK	0	
1200=HP	11	2201	15130	RUSS	RL	G15	250	582	434	140	55.86N	83.42E	BD	51B	AN	328B	GI	337D	AL	6B				
1201=HP	15	1519	15290	RUSS	RL	P1	250	4004	1111	5	51.41N	70.89E	HL	334D	GI	8C	FE	350C						
1202=HP	16	1901	15290	RUSS	RL	P1	250	41	19	22	55.81N	7.27E	BD	45A	ro	30C	BK	0	BK	0	n0	62B	BK	0
1203=HP	14	0017	15355	RUSS	RL	G2B	250	0	0	0	55.08N	84.06W	GI	29D	AL	5B								
1204=HP	14	1631	15405	RUSS	DW			0	0	0	90.00N	90.00W	RO	0C	BK	0								
1205=HP	17	1605	15405	RUSS	DW			0	0	0	0.00N	0.00E	it	65C	bl	59B	ko	55C						
1206=HP	18	1501	17795	RUSS	DW			0	0	0	53.49N	12.45E	RO	0C	BK	51A								
1207=HP	22	1516	17795	RUSS	DW			0	0	0	54.01N	80.28E	KO	54B	IT	60C								
1208=HP	23	1529	17795	RUSS	DW			11662	439	146	25.95S	158.37E	MU	60C	kr	72B	KO	55D	BL	60B	it	62B	BK	52A
1209=HP	20	0549	17895	RUSS	RL	P1	250	4582	783	13	58.56N	75.88E	HL	333D	FE	351B	DS	354C						
1210=HP	6	2111	11885	UKR	RL	P5	250	0	0	0	62.64N	87.47E	AN	329D	HL	335C								
1211=IL	20	2039	9670	????	?????????????			0	0	0	55.95N	25.70E	IT	71B	BL	60B								
1212=IL	4	0201	5955	BR	RL	HD	250	0	0	0	57.50N	35.38E	N3	155C	N0	82C								
1213=IL	10	0210	5955	BR	RL	HD	250	0	0	0	56.55N	22.29E	VB	34C	SS	35C								
1214=IL	6	2301	6105	CZEC	RFE	G10	50	0	0	0	55.21N	14.88E	BK	45A	BD	64A								
1215=IL	18	0808	17825	DARI	DW			0	0	0	0.00N	0.00E	it	71B	bl	62B	ko	53A						
1216=IL	19	0801	17825	DARI	DW			62	21	93	56.30N	37.91E	BD	62A	bk	0	mu	46B	KR	65B	IT	70A	BL	65A
1217=IL	20	0801	17825	DARI	DW			0	0	0	0.00N	0.00E	KO	55A	N0	82B	N2	132B	N1	120B				
1218=IL	21	0804	17825	DARI	DW			0	0	0	55.59N	47.67E	mu	60B	it	70A	ko	55A						
1219=IL	24	0801	17825	DARI	DW			348	48	85	57.77N	39.75E	IT	70B	KO	57B								
1220=IL	20	1631	9505	EST	RFE	HA	250	0	0	0	0.00N	0.00E	BD	60A	bk	0	MU	50B	it	70A	BL	60B	ko	53A
1221=IL	24	0201	9680	GEOR	RL	L3	100	0	0	0	0.00N	0.00E	bd	63B	n0	83B	n3	185B	bk	0				
1222=IL	9	2243	11770	KAZA	RL	HB	250	0	0	0	.65N	53.28E	n0	90B	bd	64B	bk	0						
1223=IL	21	1401	17750	KAZA	RL	HC	250	749	172	179	62.31N	12.62E	AN	334D	GI	39C								
1224=IL	23	1421	17750	KAZA	RL	HC	250	0	0	0	0.00N	0.00E	RO	0C	SS	39C	KI	20C	AL	30C				
1225=IL	22	1812	9505	LAT	RFE	HA	250	0	0	0	39.23S	158.26E	n3	150B	n2	127B	n0	0						
1226=IL	16	0431	7155	LITH	RFE	G2	250	0	0	0	58.19N	34.42E	IT	68C	BL	75C								
1227=IL	4	1834	5955	RUSS	RL	HD	250	0	0	0	0.00N	0.00E	N0	80C	N1	118C								
1228=IL	4	0001	5955	RUSS	RL	HD	250	151	59	144	57.59N	34.14E	n1	115B	n3	150B	n2	132B						
1229=IL	6	2101	5955	RUSS	RL	HD	250	0	0	0	0.00N	0.00E	N1	120C	N3	155C	N0	82C	N2	140C				
1230=IL	7	1401	6105	RUSS	RL	L9	20	0	0	0	52.96N	42.33E	ro	30C	bd	65B	n1	125B						
1231=IL	8	1031	6105	RUSS	RL	L9	20	0	0	0	54.20N	7.27E	N2	130B	N0	90C								
1232=IL	10	0931	6105	RUSS	RL	L9	20	160	26	144	57.51N	36.27E	BD	60C	BK	0								
1233=IL	12	1631	7220	RUSS	RL	L2	100	0	0	0	57.67N	37.83E	n3	146B	N1	117A	N2	133A	BD	60C				
1234=IL	14	1831	7220	RUSS	RL	L2	100	0	0	0	58.88N	7.27E	N2	130B	N0	80B								
1235=IL	12	1531	7255	RUSS	DW			0	0	0	0.00N	0.00E	N0	85C	BK	0								
1236=IL	14	1503	7255	RUSS	DW			0	0	0	47.37S	171.58W	n2	140C	n0	88C	bd	57C						
1237=IL	19	0331	9690	RUSS	DW			106	53	123	56.91N	33.34E	MU	70D	KO	60C								
1238=IL	20	0308	9690	RUSS	DW			364	45	73	55.50N	22.49E	BD	63B	N0	85B	N2	140B						
1239=IL	6	1731	11915	RUSS	DW			0	0	0	0.00N	0.00E	KR	58B	IT	72C	BL	65C	bk	0	SS	41C	AN	2C
1240=IL	7	1601	11915	RUSS	DW			0	0	0	0.00N	0.00E	ro	0C	bd	64B	bk	60B						
1241=IL	8	1631	11915	RUSS	DW			0	0	0	54.20N	7.27E	n0	82B	bd	60B	al	34B						
1242=IL	9	1641	11915	RUSS	DW			7130	741	158	10.64N	78.75E	BD	60C	BK	0								
1243=IL	10	1711	11915	RUSS	DW			12	5	4	51.61N	7.27E	VB	27B	BE	39B	AL	19B						
1244=IL	4	1031	11970	RUSS	RL	HA	250	0	0	0	49.83N	55.99E	VB	40C	BK	0	mu	56C	ko	52B	KR	70C	BK	0
1245=IL	4	0810	11970	RUSS	RL	HA	250	3173	821	107	57.20N	11.61E	N2	115B	N0	85B								
1246=IL	6	0801	11970	RUSS	RL	HA	250	701	62	69	55.98N	13.63E	SS	36C	PS	34C	GI	38D						
1247=IL	5	0711	11970	RUSS	RL	G3A	250	4271	1213	143	44.99N	54.04E	BD	58B	BE	45B	VB	40C	SS	36C				
1248=IL	7	0601	11970	RUSS	RL	G3A	250	112	54	123	57.62N	35.12E	SS	37C	LR	37D	GI	18C						
1249=IL	7	1101	11970	RUSS	RL	HA	250	0	0	0	0.00N	0.00E	N2	135B	N0	82B	n3	148B	BD	60B				
1250=IL	8	1231	11970	RUSS	RL	HA	250	0	0	0	0.00N	0.00E	n2	135B	n0	85B	bd	68B	n2	153B				
1251=IL	9	0931	11970	RUSS	RL	HA	250	0	0	0	57.81N	28.44E	n2	125B	n3	150B	bd	65B						
1252=IL	9	0801	11970	RUSS	RL	HA	250	0	0	0	0.00N	0.00E	N0	85B	N3	170C								
1253=IL	9	1131	11970	RUSS	RL	HA	250	0	0	0	0.00N	0.00E	n0	85B	bd	61B	n1	105B	n2	130C	bk	0		
1254=IL	9	1331	11970	RUSS	RL	HA	250	454	76	145	54.12N	39.51E	n3	175B	bk	0	n1	135B	n0	80B	bd	63B		
1255=IL	10	0731	11970	RUSS	RL	G3A	250	117	44	130	57.53N	36.66E	N2	132C	N1	120B	n0	80B	BD	68D	bk	0		
1256=IL	10	0901	11970	RUSS	RL	HA	250	109	43	129	57.74N	35.45E	N2	132B	N1	117B	BD	62B	N0	80B				
													N1	117B	N2	135B	N0	80B	BD	62B				



1310=KF	20	1940	17865	RUSS	RL	G8	250	4581	91	79	64.26N	165.74E	FE 320A	AN 298B	LV 327C	DS 330A				
1311=KF	23	1947	17865	RUSS	RL	G8	250	0	0	0	47.26S	59.52E	FE 320B	AN 296B						
1312=KF	13	1812	15380	UKR	RL	P3	250	630	78	104	64.06N	166.09W	LV 328B	HL 349C	gi 152C	FE 321A	DS 329B	AN 288D		
1313=KF	13	1946	15380	UKR	RL	P3	250	1012	281	30	26.38S	75.22E	GI 23C	FE 320A	DS 325C					
1314=KF	15	1940	15380	UKR	RL	P3	250	104	23	150	44.24N	118.09W	LV 317C	KI 323C	FE 320A	DS 329B	AN 296A			
1315=KF	16	1848	15380	UKR	RL	P3	250	0	0	0	6.85N	91.99E	FE 321A	AN 298B						
1316=KL	16	1256	21530	????	????	????	????	139	27	112	47.44N	33.04E	IT 104A	KO 82A	BL 104B					
1317=KM	13	1410	15370	KAZA	RL	HB	250	0	0	0	0.00N	0.00E	ds 356B	an 333C	ki 325C					
1318=KM	14	1410	15370	KAZA	RL	HB	250	2696	722	4	23.08N	67.69E	VB 40C	LV 352C	FE 346C	DS 356B	AN 330B			
1319=KM	15	1331	15370	KAZA	RL	HB	250	0	0	0	87.03N	167.55W	RO 0C	DS 357B						
1320=KM	20	1105	17610	KAZA	RL	L6	100	797	233	147	41.78N	62.70E	N2 120C	N0 90B	N1 105C	AN 331B	VB 14D	AL 13B		
													HL 332B							
1321=KM	20	0910	17610	RUSS	RL	L6	100	0	0	0	62.47N	109.49E	HL 331B	GI 347C						
1322=KM	21	1010	17610	TAJI	RL	L6	100	0	0	0	41.69N	66.92E	HL 327B	AN 332C						
1323=KM	8	0111	11770	TURK	RL	HB	250	0	0	0	0.00N	0.00E	lv 314C	an 331B						
1324=KM	20	1218	17610	TURK	RL	L6	100	0	0	0	55.83N	81.62E	HL 331B	AN 328C						
1325=KR	16	1710	15405	RUSS	DW			8133	619	59	50.39N	148.87E	DS 318C	FE 308C	LV 314C					
1326=KU	12	2139	15130	BR	RL	G15	250	0	0	0	0.00N	0.00E	kr 75B	bl 86C	mu 75B	ko 63C				
1327=KU	9	1811	11915	RUSS	DW			8664	320	90	61.68N	175.67W	KI 327C	FE 314C	DS 326C					
1328=KU	13	0810	15290	RUSS	RL	G15	250	0	0	0	48.01N	145.64E	FE 307C	HL 315C						
1329=KU	13	1040	15290	RUSS	RL	G15	250	2355	175	92	58.34N	167.50W	FE 307B	DS 322B	an 288C	LV 321D				
1330=KU	14	1040	15290	RUSS	RL	G15	250	0	0	0	0.00N	0.00E	lv 321C	fe 311A	an 288C					
1331=KU	12	0642	15380	RUSS	RL	P3+	500	2530	103	80	61.78N	179.11E	FE 314B	DS 327C	AN 286C					
1332=KU	12	1042	15380	RUSS	RL	P3+	500	0	0	0	0.00N	0.00E	lv 314C	fe 307B	ds 326C					
1333=KU	12	0840	15380	RUSS	RL	P3+	500	2329	209	87	58.25N	173.93W	LV 318C	FE 307B	DS 324C					
1334=KU	13	0741	15380	RUSS	RL	P3+	500	0	0	0	0.00N	0.00E	lv 313C	ds 325C	fe 307B					
1335=KU	13	1113	15380	RUSS	RL	P3+	500	1816	212	97	58.29N	164.46W	LV 321C	FE 307C	DS 322C					
1336=KU	15	0941	15380	RUSS	RL	P3+	500	2086	463	48	48.33N	139.57E	ds 338B	KI 322C	HL 315D	FE 306C	AN 287C			
1337=KU	15	0844	15380	RUSS	RL	P3+	500	1674	256	57	53.90N	146.43E	LV 326C	KI 324C	FE 311B	HL 315D	DS 324A	AN 286C		
1338=KU	17	0910	15380	RUSS	RL	P3+	500	0	0	0	0.00N	0.00E	gi 149C	ds 321B						
1339=KU	11	1610	15405	RUSS	DW			6002	431	40	40.64N	125.18E	lv 314B	KI 329C	FE 316C	DS 322B	AN 288B			
1340=KU	16	1711	15405	RUSS	DW			0	0	0	34.31N	122.80E	FE 310C	AN 286C						
1341=KU	11	0517	15380	UKR	RL	P3	250	0	0	0	38.25N	125.13E	FE 311B	DS 320B						
1342=KU	13	0513	15380	UKR	RL	P3	250	0	0	0	3.85N	101.64E	FE 310B	AN 288C						
1343=KV	15	2040	15485	????	????	????	????	3037	924	156	33.42N	66.98E	SS 43C	LR 27C	AN 331D	AL 23B				
1344=KV	15	1810	15640	????	????	????	????	2636	538	119	61.04N	21.37E	VB 28B	SS 35C	LR 40D	GI 32C	AL 26C			
1345=KV	12	2131	15130	BR	RL	G15	250	345	114	91	52.54N	38.43E	RO 50C	BD 73B	bk 0	SS 35C	LR 42C	CA 40C		
													BE 47C	AL 20C						
1346=KV	17	2111	15130	BR	RL	G15	250	4116	714	155	42.27N	66.57E	AL 17B	GI 15C	SS 35C	PS 28D	BE 31C	LR 27C		
1347=KV	5	2248	11815	CZEC	RFE	G3	250	3915	802	99	55.57N	1.47W	VB 42C	SS 33D	ps 57B	AL 41D				
1348=KV	6	2218	11815	CZEC	RFE	G3	250	2741	830	169	30.13N	51.00E	FE 7B	AL 41C	PS 34C	LV 350D	AN 343C	bk 0		
1349=KV	7	2343	11815	CZEC	RFE	G3	250	0	0	0	0.00N	0.00E	an 332C	fe 311C						
1350=KV	8	2340	11815	CZEC	RFE	G3	250	1255	130	118	46.59N	57.08E	SS 34C	VB 39C	LR 40D	AN 337C	KR 78A			
1351=KV	9	2340	11815	CZEC	RFE	G3	250	14106	527	141	9.20S	121.96E	MU 80B	KR 75A	KO 80B	IT 80C	bl 92B			
1352=KV	9	2231	11815	CZEC	RFE	G3	250	923	280	134	43.54N	68.60E	N0 83B	BD 73B	bk 0	SS 35C	AN 333B	GI 344D		
1353=KV	7	2131	11825	CZEC	RFE	G3B	250	12426	544	140	16.74N	97.22E	ro 250C	bk 0	BD 75B	KR 78C	IT 80C	BL 85C		
													KO 80B							
1354=KV	8	2316	11825	CZEC	RFE	G3B	250	8669	234	0	90.00N	90.00W	BK 0	RO 0C	n0 83B	BK 0				
1355=KV	10	2031	11825	CZEC	RFE	G3B	250	867	198	136	38.96N	76.10E	N2 100B	N0 78B	BD 73C	BK 77B	HL 325B	BL 85C		
													IT 84B	KR 76B						
1356=KV	10	2301	11825	CZEC	RFE	G3B	250	857	206	121	47.06N	58.84E	RO 65C	BD 73C	bk 0	N0 87B				
1357=KV	11	1019	15255	CZEC	RFE	G14	250	1277	397	145	42.28N	66.57E	bk 0	BD 75C	N2 110C	LV 334D	HL 332C			
1358=KV	11	1601	15255	CZEC	RFE	G14	250	0	0	0	0.00N	0.00E	bd 77B	bk 75B	mu 81A	it 95C	bk 0			
1359=KV	12	0731	15255	CZEC	RFE	G14	250	315	33	102	52.69N	33.17E	BD 77B	KO 63C	IT 85A	BL 80D				
1360=KV	12	1712	15255	CZEC	RFE	G14	250	0	0	0	39.80N	172.73W	BK 0	HL 329B						
1361=KV	12	1920	15255	CZEC	RFE	G14	250	0	0	0	37.55N	172.73W	HL 325B	BK 0						
1362=KV	13	1301	15255	CZEC	RFE	G14	250	975	71	113	48.63N	50.43E	BD 76A	KR 80B	BL 81B	IT 85B	KO 75B	bk 0		
													bk 0							
1363=KV	16	0510	15255	CZEC	RFE	G14	250	964	103	129	41.70N	67.79E	SS 45C	BD 74A	BK 73B	N1 98B	ko 72A	KR 80A		
													BL 80C	IT 85A						





1468=KV	13	1701	15380	UKR	RL	P3	250	840	106	117	47.60N	55.58E	ro	0C	NO	85B	BD	75B	KR	80B	IT	95D	BL	85D
1469=KV	21	1510	17895	UKR	RL	P4	250	0	0	0	53.84N	19.98E	KO	73B	BK	75B								
1470=KV	21	1940	17895	UKR	RL	P4	250	0	0	0	0.00N	0.00E	BE	46C	SS	38C								
1471=KV	21	1846	17895	UKR	RL	P4	250	0	0	0	0.00N	0.00E	vb	20C	ss	41C	bk	0						
1472=L4	20	0431	9555	BULG	RFE	G8	250	0	0	0	0.00N	0.00E	ss	39C	gi	6A	ki	31C						
1473=L4	22	0401	9555	BULG	RFE	G8	250	0	0	0	0.00N	0.00E	bd	104B	bk	0	n0	140C						
1474=L4	18	1940	17725	BULG	RFE	G10	50	4295	727	139	29.39N	46.16E	n2	165C	n0	125B	ss	51C						
1475=L4	18	2012	17725	BULG	RFE	G10	50	1986	796	146	41.89N	26.95E	SS	54C	PS	42B	GI	30C	BE	53B				
1476=L4	19	2117	17725	BULG	RFE	G10	50	1066	272	138	42.02N	25.21E	PS	44B	VB	47D	FE	23C	AN	2C				
													VB	44B	SS	47C	LV	25C	LR	50B	KI	38C	GI	36B
													FE	21B	DS	31A	BE	52B	AN	3B	AL	49A		
1477=L4	19	2040	17725	BULG	RFE	G10	50	1180	238	130	44.55N	22.75E	VB	43B	SS	44C	PS	44B	LV	29C	LR	49C	KI	40B
													FE	21B	DS	28B	BE	53A	AN	2C	AL	48A		
1478=L4	19	1907	17725	BULG	RFE	G10	50	575	160	43	62.27N	68.40W	bk	114A	PS	14C	LR	11D	ki	39B	GI	30B	be	24B
1479=L4	19	1631	17725	BULG	RFE	G10	50	0	0	0	0.00N	0.00E	bd	105A	n0	210C	n3	296B	n2	218B				
1480=L4	20	2101	17725	BULG	RFE	G10	50	93	25	132	46.54N	19.92E	BD	90C	BK	112B	NO	130C	SS	43C	AL	48A	LR	49B
													KI	39B	GI	35C	PS	45C	FE	27C	DS	32B	LV	27C
													VB	44B	BE	52B	AN	2C	AL	48A	VB	44B	SS	43C
													KI	39B	GI	38C	BE	52B	KR	120C	KO	105B	bl	126A
													IT	134A										
1481=L4	20	2040	17725	BULG	RFE	G10	50	1436	254	120	50.47N	8.87E	VB	43B	LR	48C	SS	43C	FE	27C	DS	32B	LV	28C
													BE	51B	AL	48A								
1482=L4	20	1710	17725	BULG	RFE	G10	50	1097	222	125	48.39N	13.82E	VB	48C	LR	46C	LV	31C	KI	38C	FE	32B	GI	41A
													PS	42B	BE	54A	DS	29C	AN	4C				
1483=L4	21	2110	17725	BULG	RFE	G10	50	1316	2	133	50.87N	7.67E	LR	48B	VB	44B	KI	38B	be	52B	AL	48C	BK	114A
1484=L4	21	2001	17725	BULG	RFE	G10	50	380	18	1	52.46N	7.27E	BK	0	LV	24C	DS	32C	GI	37B	BE	52C	LR	48B
													AN	2C	VB	43B	AL	48C						
1485=L4	21	1940	17725	BULG	RFE	G10	50	3251	383	131	44.15N	25.47E	SS	46D	PS	44B	LV	23D	KI	36B	LR	48B	GI	37B
													RE	53B	AL	44B								
1486=L4	21	1710	17725	BULG	RFE	G10	50	248	16	180	52.84N	7.27E	AL	43B	BE	53B	FE	37C	SS	43C	DS	33B	LR	49C
													GI	37C	PS	42B	BK	0	SS	43C	VB	45B	LR	47C
													GI	37B	DS	33B	BE	50C	AL	36C	PS	38D	FE	24B
													BK	0										
1487=L4	22	1910	17725	BULG	RFE	G10	50	1812	398	134	40.05N	28.38E	SS	54C	PS	44B	GI	38B	FE	24C	DS	36B	CA	49C
													BE	52C	AL	43C	SS	54C	PS	43B	GI	38B	bk	0
1488=L4	23	1610	17725	BULG	RFE	G10	50	1760	271	127	46.05N	21.13E	PS	43B	LR	50B	FE	25C	LV	27C	DS	32B	AN	3D
													CA	49B	BE	53A								
1489=L4	22	1510	17725	BULG	RFE	G10	50	4859	170	129	38.82N	40.13E	BK	105B	SS	54C	PS	45B	LR	30D	BE	51C		
1490=L4	23	1535	17725	BULG	RFE	G10	50	0	0	0	45.78N	18.78E	KR	120D	IT	140A								
1491=L4	23	1801	17725	BULG	RFE	G10	50	48	20	138	50.30N	15.71E	n3	110B	n2	100B	n0	73B	KO	58B	BL	130B	IT	135A
													SS	56C	VB	46C	LR	50B	DS	31B	PS	43B	CA	51A
													AL	45B	BE	53A								
1492=L4	24	1731	17725	BULG	RFE	G10	50	347	71	135	43.94N	25.53E	NO	132B	BD	105B	SS	54C	PS	44B	LV	26C	LR	50C
													KI	38B	DS	31B	CA	50B	BE	53B	SS	54C	PS	44B
													KI	38B	CA	50B	BE	53B						
1493=L4	23	2143	17725	BULG	RFE	G10	50	3316	146	107	53.98N	2.37W	LR	49B	KI	39B	CA	50A	BE	52A	AL	44B		
1494=L4	24	2001	17725	BULG	RFE	G10	50	132	38	132	44.82N	24.24E	N2	168B	N1	158B	NO	131B	BD	105A				
1495=L4	24	1914	17725	BULG	RFE	G10	50	2655	71	131	43.09N	23.90E	BK	119B	CA	50B	BE	52B	SS	50C	PS	44C	LR	50C
													KI	39B	GI	39C	DS	31B						
1496=L4	17	1601	21500	BULG	RFE	G1A	250	219	40	125	47.98N	19.29E	BK	106B	KR	110C	IT	130B	AN	1C	SS	50C		
1497=L4	24	0831	17725	RUSS	RL	G10	50	0	0	0	57.25N	32.11E	N1	125C	NO	85B								
1498=L8	20	1040	17835	CZEC	RFE	G11	50	0	0	0	0.00N	0.00E	ss	45C	vb	43D	gi	0C						
1499=LD	12	1401	15290	DARI	RFE	G15	250	0	0	0	0.00N	0.00E	n2	110C	n0	85B	bk	0						
1500=LD	15	2001	7225	EUR	IBA			0	0	0	54.23N	51.95E	N1	103C	NO	80C								
1501=LD	13	1340	15290	PASH	RFE	G15	250	2557	885	20	66.12N	91.99E	VB	357C	LV	350C	HL	325D	DS	355C				
1502=LD	24	1331	17770	PASH	RFE	G3A	250	0	0	0	55.46N	43.13E	BD	65C	KR	65D								
1503=LD	16	1731	15290	RUSS	RL	P1	250	2584	145	117	48.20N	66.89E	bk	0	bk	0	MU	75C	KR	70B	IT	74B	bl	70B
													KO	65C	BK	70B	BK	70B						
1504=LD	16	2201	7255	TAJI	RL	L7	100	51	23	5	53.84N	7.27E	BD	64B	BK	0	BK	0						
1505=LD	18	1846	9565	UKR	RL	L7	100	0	0	0	57.46N	134.37E	LV	325D	HL	325B								

1506=LD	21	2142	9565	UKR	RL	P4	250	4135	578	34	60.24N	96.35E	LV	335C	HL	330D	AN	323C	FE	344C
1507=LD	21	2040	9565	UKR	RL	L7	100	5247	940	13	30.24N	68.53E	LV	342D	HL	315D	FE	350B	AN	330C
1508=LD	21	1811	9565	UKR	RL	L7	100	0	0	0	58.57N	109.64E	LV	335C	HL	327C				
1509=LD	22	1810	9565	UKR	RL	L7	100	0	0	0	.70S	60.38E	GI	31C	AN	326C				
1510=LF	19	2036	9670	????	????????????			0	0	0	0.00N	0.00E	mu	80D	kr	72C	ko	60C		
1511=LF	5	2117	11865	????	????????????			2928	284	93	62.61N	12.99W	CA	39C	AL	38B	BE	40C		
1512=LF	5	0516	11975	????	????????????			0	0	0	53.59N	27.26E	GI	30C	AL	36B				
1513=LF	22	1446	17760	AZ	RL	L3	100	0	0	0	0.00N	0.00E	ko	75B	bl	109C	it	114C		
1514=LF	5	1710	6105	RUSS	RL	L9	20	0	0	0	48.36N	17.55E	KO	80C	MU	85D				
1515=LF	6	1301	6105	RUSS	RL	L9	20	0	0	0	0.00N	0.00E	mu	43D	ko	90C	bk	0		
1516=LF	6	1631	6105	RUSS	RL	L9	20	0	0	0	0.00N	0.00E	ro	0C	mu	35D	it	90C		
1517=LF	7	1401	6105	RUSS	RL	L9	20	0	0	0	90.00N	90.00W	RO	0	BK	0				
1518=LF	8	1031	6105	RUSS	RL	L9	20	0	0	0	48.85N	20.12E	RO	35C	MU	80C				
1519=LF	9	1231	6105	RUSS	RL	L9	20	0	0	0	48.20N	15.93E	RO	20C	KO	81B				
1520=LF	9	1731	6105	RUSS	RL	L9	20	0	0	0	90.00N	90.00W	RO	0C	BK	0				
1521=LF	10	0931	6105	RUSS	RL	L9	20	0	0	0	38.33S	172.73W	RO	50C	BK	0				
1522=LF	10	0831	6105	RUSS	RL	L9	20	0	0	0	0.00N	0.00E	bk	0	ro	30C	ko	84B	kr	68D
1523=LF	10	0701	6105	RUSS	RL	L9	20	0	0	0	0.00N	0.00E	ro	30C	n0	115B	bk	54A		
1524=LF	9	1631	6105	RUSS	RL	L9	20	0	0	0	90.00N	90.00W	RO	0C	BK	0				
1525=LF	10	1531	6105	RUSS	RL	L9	20	142	50	101	47.48S	172.73W	ro	0C	KO	82B	MU	78C	BK	0
1526=LF	10	1831	6105	RUSS	RL	L9	20	0	0	0	48.02N	12.45E	RO	0	KO	80C				
1527=LF	13	0231	7145	RUSS	RL	B1	100	0	0	0	50.66N	12.45E	RO	0C	BD	95B				
1528=LF	12	0528	7155	RUSS	RL	L6	100	0	0	0	0.00N	0.00E	mu	80C	ko	55C	ro	40C	bk	0
1529=LF	16	0331	7210	RUSS	DW			0	0	0	34.31S	172.73W	RO	30C	BK	0				
1530=LF	12	2210	7220	RUSS	RL	L2	100	0	0	0	90.00N	90.00W	BK	0	RO	0C				
1531=LF	14	0531	7220	RUSS	RL	L2	100	0	0	0	0.00N	0.00E	ro	30C	it	75B	ko	52B		
1532=LF	17	0531	7220	RUSS	RL	L2	100	0	0	0	0.00N	0.00E	ro	0C	bk	0	kr	97B	ko	80C
1533=LF	13	1516	7255	RUSS	DW			0	0	0	49.38N	25.65E	KO	75C	KR	92C				
1534=LF	14	1512	7255	RUSS	DW			117	25	108	48.55N	23.47E	BL	118B	KR	98A	KO	78B	MU	85B
1535=LF	15	0316	7285	RUSS	DW			0	0	0	0.00N	0.00E	mu	40D	ko	55C	it	85C		
1536=LF	18	1331	9520	RUSS	RL	L1	100	0	0	0	90.00N	90.00W	RO	0C	BK	0				
1537=LF	19	0831	9520	RUSS	RL	L1	100	0	0	0	90.00N	90.00W	RO	0C	BK	0				
1538=LF	22	0701	9660	RUSS	RL	B6	100	0	0	0	36.79S	172.73W	RO	40C	BK	0				
1539=LF	20	0310	9690	RUSS	DW			540	91	70	51.21N	20.58E	KO	60C	AN	359C	BE	50B	SS	42D
1540=LF	24	0320	9705	RUSS	RL	G2A	250	5202	212	80	60.59N	25.02W	LR	38B	CA	42C	BE	43C		
1541=LF	19	2243	9750	RUSS	RL	P2	250	0	0	0	45.13N	34.08E	BE	48B	AN	357D				
1542=LF	8	2301	11725	RUSS	RL	P5	250	0	0	0	49.52N	27.94E	NO	116C	BD	87B				
1543=LF	10	0240	11725	RUSS	RL	G4	250	7843	816	125	55.20N	26.99E	PS	35D	LR	39C	GI	27D	VB	32C
1544=LF	5	0901	11770	RUSS	RL	B6	100	0	0	0	0.00N	0.00E	bk	90C	it	109C	mu	50D	ko	78B
1545=LF	4	0701	11855	RUSS	RL	HA	250	2449	111	112	49.60S	179.56E	BK	76B	KR	70B	BK	76B		
1546=LF	6	0210	11855	RUSS	RL	G10	50	1908	426	122	57.48N	8.61E	LV	27C	FE	21C	DS	34C	BE	43C
1547=LF	7	0711	11855	RUSS	RL	HA	250	11343	1068	140	31.78N	45.59E	VB	45C	LR	45C	AL	40C		
1548=LF	5	0801	11875	RUSS	RL	L5	100	1596	40	102	50.30N	17.50E	BK	93B	KR	95B	VB	43C	LR	44C
1549=LF	10	1031	11875	RUSS	RL	L5	100	0	0	0	0.00N	0.00E	ro	10C	bk	0	ko	56A	ko	85B
1550=LF	10	0740	11970	RUSS	RL	G3A	250	5664	322	105	54.76N	.72W	VB	41B	LR	48D	BE	50B	CA	49C
1551=LF	12	0901	15130	RUSS	RL	P6	250	0	0	0	0.00N	0.00E	ro	280C	bk	0				
1552=LF	16	0040	15130	RUSS	RL	G1B	250	7317	145	68	56.15N	42.01W	PS	37C	LR	43C	BE	46C		
1553=LF	11	0340	15290	RUSS	RL	G15	250	0	0	0	68.88N	8.60E	LR	27B	GI	24C				
1554=LF	12	0510	15290	RUSS	RL	G15	250	703	81	102	50.60N	39.54E	BE	48C	MU	75D	KR	80C	it	78C
1555=LF	12	1814	15290	RUSS	RL	P1	250	0	0	0	54.75N	.63W	VB	40C	BE	51A				
1556=LF	16	1017	15290	RUSS	RL	G15	250	0	0	0	0.00N	0.00E	ss	45D	vb	43C	bk	0	bk	0
1557=LF	16	0701	15290	RUSS	RL	G15	250	0	0	0	47.78N	23.90E	RO	50C	KO	84B				
1558=LF	16	1914	15290	RUSS	RL	P1	250	0	0	0	50.96N	27.36E	AL	38A	SS	40C				
1559=LF	16	0110	15340	RUSS	RL	G15	250	0	0	0	2.08S	72.22E	PS	39B	LR	45B				
1560=LF	11	1831	15370	RUSS	RL	HB	250	0	0	0	52.94N	12.45E	RO	0C	BK	58B				
1561=LF	14	0631	15370	RUSS	RL	HB	250	116	53	95	52.33N	22.83E	RO	30C	KR	80C	IT	95C	IT	95C
1562=LF	19	0701	17610	RUSS	RL	L6	100	0	0	0	42.19N	68.42E	KO	70C	NO	85C				
1563=LF	18	0631	17735	RUSS	RL	G2B	250	0	0	0	0.00N	0.00E	ro	0C	ko	75C	it	80D		
1564=LF	22	0731	17750	RUSS	RL	HC	250	0	0	0	27.95S	113.34E	EN	100C	BD	91B				
1565=LF	18	1018	17760	RUSS	RL	L3	100	3419	528	108	53.82N	8.86E	SS	38C	VB	42C	LR	44B		



1566=LF	18	1240	17760	RUSS	RL	L3	100	5382	665	128	47.82N	27.75E	VB	39B	PS	41B	GI	32C
1567=LF	22	0531	17760	RUSS	RL	L3	100	0	0	0	0.00N	0.00E	n0	120B	bD	91B	BK	0
1568=LF	23	0601	17760	RUSS	RL	L3	100	0	0	0	51.35N	12.45E	RO	0C	BD	90C		
1569=LF	19	1801	17795	RUSS	DW			0	0	0	57.89N	32.87E	N3	160C	N0	82B		
1570=LF	18	1947	17865	RUSS	RL	G8	250	0	0	0	64.32N	28.12E	LV	13D	AN	1B		
1571=LF	23	1737	17885	RUSS	RL	G18	10	0	0	0	0.00N	0.00E	n2	150C	n1	145C	n0	105C
1572=LF	23	2131	17885	RUSS	RL	G18	10	1227	407	159	9.02S	113.03E	N0	90B	MU	86C	KO	84A SS 2C
1573=LF	13	1101	21455	RUSS	RL	G2B	250	226	41	118	48.14N	28.20E	N0	119B	BD	91A	BK	0 b1 115B KR 95D
1574=LF	15	1117	21530	RUSS	RL	G8	250	682	33	180	53.89N	7.27E	BK	0	VB	40C	BE	50C
1575=LF	12	1001	21735	RUSS	RL	G18	10	0	0	0	0.00N	0.00E	ro	30C	bD	91A	BK	0
1576=LF	20	0301	9625	UKR	RL	P4	250	68	15	0	52.70N	7.27E	ro	70C	BD	78C	BK	0 b1 110D BK 0
1577=LF	19	0531	9660	UKR	RL	HC	250	1644	165	109	49.24S	169.44E	ro	0C	BD	72B	BK	88A MU 95C ko 81A it 113C
													BL	100D				
1578=LF	11	0409	15380	UKR	RL	P3	250	1712	50	98	51.03N	14.91E	KR	91B	1r	23B	CA	49C SS 45D PS 41D BE 49C
1579=LF	11	0510	15380	UKR	RL	P3	250	756	13	179	52.02N	7.27E	LR	46C	SS	41D	VB	43C BK 0
1580=LF	11	2110	15380	UKR	RL	P3	250	2014	218	120	55.17N	16.50E	GI	31C	CA	45C	AL	40A BE 44B KI 33C LR 40A
													SS	42C	VB	38C		
1581=LF	20	1331	17735	UKR	RL	G3	250	0	0	0	38.57N	57.27E	N1	115B	MU	89C		
1582=LF	22	1201	17735	UKR	RL	G3	250	132	36	108	49.48N	23.43E	ro	0C	n0	110B	BD	91B KO 74B BL 110B IT 114C
1583=LF	8	1910	11770	roma	RFE	G3	250	549	59	180	58.55N	7.27E	VB	34C	BE	45C	AL	38C BK 0
1584=LF	8	1812	11770	roma	RFE	G3	250	0	0	0	48.82N	28.63E	VB	39D	AL	39B		
1585=LK	10	0210	11655	????	????	????	???	0	0	0	56.43N	28.11W	LR	45D	VB	37C		
1586=LK	20	0101	9680	ARM	RL	L3	100	0	0	0	0.00N	0.00E	ro	250C	be	45C	BK	0
1587=LK	17	1931	15340	ARM	RL	L4	100	158	39	79	55.18N	27.00E	RO	30C	KR	67B	IT	74B BL 65C KO 50C
1588=LK	22	1443	17760	AZ	RL	L3	100	0	0	0	44.13N	45.04E	SS	42C	BE	43C		
1589=LK	7	0401	5955	BR	RL	HD	250	102	30	68	55.46N	22.96E	RO	30C	BD	67B	BK	0 IT 69B BL 67C KR 67C
													KO	40B	KO	40B	mu	25C SS 45C LR 20C
1590=LK	20	1631	9505	EST	RFE	HA	250	75	33	68	55.61N	22.08E	ro</					







[illegible]











2049=NK	12	2101	15255	CZEC	RFE	G14	250	400	74	119	46.30N	54.70E	KO 80A	MU 84B	BL 95B	IT 90A	KR 84A		
													RO 55C	N3 120C	BD 77A	bk 0	HL 323C	KR 82A	
2050=NK	12	1414	15255	CZEC	RFE	G14	250	1721	605	173	35.61N	66.72E	KO 70C	BL 90B	IT 87B	bk 0	bk 0		
													PS 28C	LV 349C	LR 28C	HL 324D	FE 351B	DS 4C	
2051=NK	13	0710	15255	CZEC	RFE	G14	250	2496	997	0	38.45N	65.42E	AN 333C	VB 27B	AL 23C	bk 0			
2052=NK	12	1140	15255	CZEC	RFE	G14	250	989	462	159	53.89N	54.41E	LV 348C	AN 336C	SS 36D	LV 348D	VB 30C		
													VB 27B	SS 36C	LV 349C	LR 26B	HL 323D	BE 31B	
2053=NK	12	1513	15255	CZEC	RFE	G14	250	2178	694	153	28.04N	61.71E	AN 352C	LV 349C	HL 323D	AN 352C			
2054=NK	13	1047	15255	CZEC	RFE	G14	250	1455	598	167	38.10N	64.59E	VB 27B	SS 53C	LV 359B	BE 48B	AL 24C	bk 0	
													LR 30C	CA 32D	AN 333B	BE 37B	DS 3B	VB 24C	
2055=NK	13	0910	15255	CZEC	RFE	G14	250	1622	619	163	38.79N	68.45E	SS 36C						
													LR 28C	SS 36C	DS 2B	AN 329C	CA 28C	BE 31B	
													VB 23C	HL 326D					
2056=NK	13	1640	15255	CZEC	RFE	G14	250	675	278	132	45.43N	65.25E	HL 329C	BE 33A	AN 332B	AL 17B	SS 36C	BK 74B	
2057=NK	13	2201	15255	CZEC	RFE	G14	250	103	88	70	53.33N	12.45E	RO 0C	BD 75C	SS 41C	an 331B			
2058=NK	13	2010	15255	CZEC	RFE	G14	250	1512	500	5	32.98N	66.05E	VB 37C	SS 38C	HL 325C	FE 353A	AN 328B	AL 22C	
2059=NK	13	1310	15255	CZEC	RFE	G14	250	1525	355	165	38.96N	69.07E	ro 0C	VB 25C	SS 49C	BE 31B	AL 18A	AL 18A	
													LV 358D	FE 355B	DS 3B	AN 329C	bk 0	bk 0	
2060=NK	14	1214	15255	CZEC	RFE	G14	250	2083	862	178	35.87N	61.40E	bk 0	SS 39C	LV 24C	HL 332D	DS 2B	AN 328C	
2061=NK	14	1431	15255	CZEC	RFE	G14	250	499	211	151	41.26N	67.89E	ro 0C	N2 110B	N0 85B	BD 75B	bk 0	SS 38C	
													LR 28C	HL 331D	GI 9C	FE 356C	DS 4B	AN 330A	
													VB 29C						
2062=NK	14	2110	15255	CZEC	RFE	G14	250	3336	845	20	39.61N	74.46E	LV 344B	HL 322C	GI 13D	AN 328C			
2063=NK	14	2001	15255	CZEC	RFE	G14	250	0	0	0	0.00N	0.00E	ro 0C	n0 88B	bd 77A	bk 0	mu 80C	kr 85C	
													ko 79B	bl 88A	it 90A	fe 351B	lv 347B	ss 36C	
													lr 30C	be 34C	al 16C	be 33C	ki 16C	lr 346C	
													al 18C	an 330A					
2064=NK	14	1816	15255	CZEC	RFE	G14	250	1695	635	16	38.38N	66.21E	SS 36C	LV 352C	HL 324B	FE 354B	AN 332B		
2065=NK	16	0531	15255	CZEC	RFE	G14	250	0	0	0	0.00N	0.00E	ro 0C	n0 85A	ss 51C				
2066=NK	15	1312	15255	CZEC	RFE	G14	250	1891	790	171	13.49N	69.46E	SS 36C	CA 47C	DS 7C	BE 50C	LV 358C	FE 339B	
2067=NK	15	1131	15255	CZEC	RFE	G14	250	8436	534	144	31.67N	73.65E	N0 90B	ro 0C	VB 17D	BE 34C			
2068=NK	15	1940	15255	CZEC	RFE	G14	250	1670	700	15	38.07N	64.21E	SS 38C	HL 325B	FE 2C	DS 358C	AN 333B		
2069=NK	17	1210	15255	CZEC	RFE	G14	250	1287	612	166	44.41N	62.49E	SS 36C	PS 21C	HL 332B	GI 14C	FE 355C	DS 6B	
													BE 33B						
2070=NK	16	2041	15255	CZEC	RFE	G14	250	2801	770	22	37.12N	65.09E	DS 2C	HL 324B	AN 333B				
2071=NK	17	1140	15255	CZEC	RFE	G14	250	4274	798	154	29.15N	71.63E	VB 23C	SS 45C	PS 21C	GI 14C	BE 33B		
2072=NK	16	1941	15255	CZEC	RFE	G14	250	2020	936	162	27.16N	62.01E	SS 36C	FE 357C	BE 46C	PS 42C	AN 328C		
2073=NK	16	2310	15255	CZEC	RFE	G14	250	0	0	0	29.56N	42.40E	SS 56C	GI 34D					
2074=NK	17	2141	15255	CZEC	RFE	G14	250	0	0	0	41.18N	66.71E	AN 332B	SS 35C					
2075=NK	17	1901	15255	CZEC	RFE	G14	250	563	176	136	41.71N	67.29E	BD 75A	N0 87B	BE 33A	GI 4D	AN 332B	HL 326B	
													LV 354C	DS 6C	AL 17A	SS 36C	FE 356C	bk 0	
2076=NK	17	1731	15255	CZEC	RFE	G14	250	994	502	150	38.07N	66.49E	ro 0C	N0 90C	bk 0	SS 36C	BE 36B	DS 2D	
													FE 356C	HL 325B	AN 328C				
2077=NK	15	1731	15240	RUS	IBA			145	80	122	56.87N	33.01E	RO 35C	N1 125C	N0 85C				
2078=NK	18	1605	17710	RUS	IBA			1220	668	134	48.56N	64.28E	KR 70D	SS 36C	LV 2C	FE 351C	DS 2C		
2079=NK	23	1331	17710	RUS	IBA			0	0	0	0.00N	0.00E	n0 0	bd 77B	n0 87B				
2080=NK	23	1401	17710	RUS	IBA			0	0	0	0.00N	0.00E	n0 87B	n3 0					
2081=NK	12	0219	15130	RUSS	RL	G1B	250	0	0	0	49.14N	72.05E	PS 15C	AN 331B					
2082=NK	11	2201	15130	RUSS	RL	G15	250	0	0	0	0.00N	0.00E	n0 90B	n2 130B	bk 0				
2083=NK	13	0201	15130	RUSS	RL	G1B	250	0	0	0	53.03N	29.61E	RO 40C	BD 75C					
2084=NK	15	0240	15130	RUSS	RL	G1B	250	0	0	0	49.89N	47.95E	SS 36C	GI 21C					
2085=NK	17	0431	15130	RUSS	RL	P6	250	0	0	0	90.00N	90.00W	RO 0C	BK 0					
2086=NK	15	1531	15245	RUSS	BBC	CYPRUS		717	113	130	38.60N	66.88E	N2 110B	N0 90B	ro 0	KO 80A	KR 79B	BL 90B	
													IT 89A						
2087=NK	15	0410	15255	RUSS	RL	G18	10	2104	159	122	43.11N	60.21E	KO 78B	BL 88B	IT 87B				
2088=NK	18	1210	17760	RUSS	RL	L3	100	2809	1056	161	25.49N	72.38E	FE 345C	VB 36C	KI 10C	SS 38C	bk 0		
2089=NK	21	1140	17760	RUSS	RL	L3	100	0	0	0	55.19N	10.03E	VB 38C	SS 37C					
2090=NK	22	1216	17760	RUSS	RL	L3	100	1113	203	143	37.11N	69.81E	bk 0	N3 120B	N0 90B	EN 99B	BD 77B	IT 90C	
2091=NS	11	2001	7245	RUSS	RL	HC	250	0	0	0	64.24N	22.64E	N2 150B	N1 110C					
2092=NU	9	1341	11770	????	????	????	????	5209	504	52	64.10N	158.25E	VB 340B	PS 337C	KI 332C	AL 332B			

2093=NU	9	1213	11770	????	????????????	1293	282	49	52.29N	134.69E	LV 322C	HL 314C	FE 318B	DS 333B	AN 292B	AL 330B		
2094=NU	12	1550	7255	RUSS	DW	2353	124	70	60.96N	163.69E	LV 322B	fe 309C	DS 328B	AN 290B				
2095=NU	18	1916	9520	RUSS	RL L1	100	1150	285	53	52.60N	143.41E	LV 319C	HL 320C	AN 287B				
2096=NU	18	1844	9520	RUSS	RL L1	100	4052	179	60	57.90N	155.00E	FE 314C	AN 288B	LV 320C				
2097=NU	18	1410	9520	RUSS	RL L1	100	0	0	0	0.00N	0.00E	lv 338D	fe 326B	ds 332C				
2098=NU	19	1441	9520	RUSS	RL L1	100	11387	580	43	47.15N	126.17E	LV 319C	DS 327C	AN 2940	FE 316B			
2099=NU	20	2011	9520	RUSS	RL L1	100	7380	370	45	48.50N	133.83E	AN 289B	LV 317C	FE 314C				
2100=NU	21	2040	9520	RUSS	RL L1	100	0	0	0	62.84N	168.57W	AN 289C	LV 327C					
2101=NU	21	1911	9520	RUSS	RL L1	100	10731	501	38	40.77N	125.15E	KI 325C	DS 322B	AN 289B				
2102=NU	22	1410	9520	RUSS	RL L1	100	0	0	0	0.00N	0.00E	ki 320C	hl 314C	fe 328C	ds 327C			
2103=NU	22	2116	9520	RUSS	RL L1	100	0	0	0	0.00N	0.00E	an 288C	gi 147C					
2104=NU	24	1410	9520	RUSS	RL L1	100	0	0	0	0.00N	0.00E	ki 325D	fe 317B	an 291B				
2105=NU	24	1210	9520	RUSS	RL L1	100	1541	472	52	49.91N	133.26E	LV 315D	KI 330C	HL 316C	FE 321D	DS 327C	AN 290C	
2106=NU	24	1010	9520	RUSS	RL L1	100	1031	342	51	49.22N	132.31E	PS 337C	HL 315B	GI 313D	FE 316C	DS 328C	AN 291B	
2107=NU	24	1841	9520	RUSS	RL L1	100	0	0	0	46.69N	130.08E	FE 314B	AN 290B					
2108=NU	23	2012	9520	RUSS	RL L1	100	12807	1061	30	13.11N	103.35E	LV 311C	KI 330C	AN 291C				
2109=NU	24	2140	9520	RUSS	RL L1	100	0	0	0	43.91N	128.11E	LV 316C	AN 289C					
2110=NU	18	1712	9715	RUSS	DW	0	0	0	0	0.00N	0.00E	lv 325C	hl 321C	an 288B				
2111=NU	20	1610	9715	RUSS	DW	4977	523	60	55.84N	149.12E	LV 317C	DS 327C	FE 314C	GI 325C				
2112=NU	21	1541	9715	RUSS	DW	1773	659	63	47.99N	134.64E	FE 312C	DS 323B	HL 314C					
2113=NU	22	1810	9715	RUSS	DW	786	109	36	29.21S	72.33E	LV 319C	GI 31C	FE 307B	DS 325B	AN 290C			
2114=NU	22	1540	9715	RUSS	DW	1453	436	53	49.15N	135.62E	LV 319C	HL 314C	FE 316C	AN 286C	DS 329C			
2115=NU	23	1710	9715	RUSS	DW	6079	161	76	63.27N	166.19E	LV 320D	DS 331B	KI 333C	AN 295C				
2116=NU	23	1512	9715	RUSS	DW	8545	480	41	43.98N	122.31E	FE 317B	LV 319B	DS 325B	AN 293C				
2117=NU	24	1510	9715	RUSS	DW	1631	462	51	49.80N	130.97E	HL 315C	FE 316C	DS 331B	AN 290C				
2118=NU	23	1816	9715	RUSS	DW	18994	875	37	34.33N	117.36E	FE 314C	DS 322B	AN 290D					
2119=NU	4	0941	11770	RUSS	RL B6	100	1390	344	48	50.55N	135.00E	HL 317C	PS 336C	KI 326B	AN 291B			
2120=NU	4	1241	11770	RUSS	RL B6	100	1115	383	52	47.87N	130.49E	LV 317C	GI 328D	AN 291B	HL 314B			
2121=NU	5	0913	11770	RUSS	RL B6	100	1106	249	52	54.05N	141.22E	BE 322C	PS 336B	KI 328C	HL 315C	FE 316B	DS 323C	
2122=NU	6	1010	11770	RUSS	RL B6	100	2253	65	80	62.39N	176.56E	AN 288C	fe 325C	GI 320C	DS 328C	AN 290B	LV 317C	
2123=NU	7	1342	11770	RUSS	RL B6	100	1337	329	46	47.74N	133.92E	HL 310C	FE 319B	AN 287B	LV 318C	AL 330B		
2124=NU	8	1312	11770	RUSS	RL B6	100	1949	494	44	43.83N	122.90E	LV 315C	KI 331C	HL 310C	DS 329C	FE 318B	AN 291C	
2125=NU	8	1241	11770	RUSS	RL B6	100	1363	136	79	65.03N	166.90E	FE 324B	AN 298C	AL 330B	DS 332B	GI 335B		
2126=NU	8	1110	11770	RUSS	RL B6	100	1291	380	44	47.20N	133.79E	AL 334C	HL 311C	AN 289B	LR 335B	fe 329B		
2127=NU	4	0711	11855	RUSS	RL HA	250	1089	373	53	48.74N	131.64E	LV 317C	AN 291B	HL 315B				
2128=NU	5	0718	11855	RUSS	RL HA	250	938	330	52	49.43N	134.91E	AL 332B	LV 319B	KI 331B	HL 315B	GI 327C	FE 314B	
2129=NU	7	0710	11855	RUSS	RL HA	250	1125	354	48	46.56N	128.38E	AN 289C	AL 326C	LV 322C	KI 327C	HL 311B	FE 315C	DS 326B
2130=NU	7	0016	11855	RUSS	RL G10	50	0	0	0	54.59N	152.27E	AN 284C	LV 317C					
2131=NU	9	0740	11855	RUSS	RL HA	250	1720	531	49	46.87N	129.10E	HL 313C	FE 316C	AN 291C	DS 321C			
2132=NU	4	0317	11935	RUSS	RL HA	250	0	0	0	45.56N	124.50E	AN 293B	LV 319C					
2133=NU	5	0444	11935	RUSS	RL HA	250	0	0	0	48.79N	134.36E	HL 315C	AN 289B					
2134=NU	6	0411	11935	RUSS	RL HA	250	0	0	0	57.14N	151.51E	LV 320C	FE 314C					
2135=NU	7	0516	11935	RUSS	RL HA	250	5676	194	43	47.52N	131.17E	LV 317C	AN 290A	LV 318C	AN 290B			
2136=NU	9	0040	11935	RUSS	RL G9	50	0	0	0	34.97N	119.54E	LV 314C	AN 289B					
2137=NU	11	0746	15130	RUSS	RL P6	250	1463	264	47	47.97N	133.73E	AN 289B	FE 313A	DS 324C	HL 314C	KI 326B		
2138=NU	12	0613	15130	RUSS	RL P6	250	1423	406	52	49.42N	136.12E	LV 320C	HL 315C	AN 287C	FE 314B			
2139=NU	12	0811	15130	RUSS	RL P6	250	1440	312	49	49.65N	134.27E	LV 318C	HL 316C	FE 314B	DS 324B	AN 290B		
2140=NU	13	0640	15130	RUSS	RL P6	250	1493	430	52	48.17N	134.60E	HL 314C	FE 312C	DS 323B	LV 318C	AN 288C		
2141=NU	14	0712	15130	RUSS	RL P6	250	1467	544	66	47.90N	129.64E	LV 316C	HL 314B	DS 327B	FE 314C			
2142=NU	14	0511	15130	RUSS	RL P6	250	1479	456	52	47.33N	135.05E	HL 313C	LV 315C	AN 286C	FE 314C	DS 324C		
2143=NU	14	1016	15130	RUSS	RL P6	250	4746	392	79	59.78N	170.00E	LV 320C	DS 326C	FE 312C				
2144=NU	15	0813	15130	RUSS	RL P6	250	1080	293	50	46.24N	131.90E	AN 288C	LV 323B	HL 311B	DS 320B	FE 312A		
2145=NU	15	1247	15130	RUSS	RL P6	250	0	0	0	26.87S	69.36E	LV 316D	FE 333C					
2146=NU	17	0910	15130	RUSS	RL P6	250	1187	449	55	47.15N	130.09E	lv 3A	KI 329D	HL 313B	FE 316B	AN 289C		
2147=NU	17	0442	15130	RUSS	RL P6	250	3352	49	85	62.54N	176.92W	FE 317C	DS 323C	AN 288B	AN 288B			
2148=NU	12	0412	15290	RUSS	RL G15	250	0	0	0	50.34N	138.17E	HL 317B	AN 288C					
2149=NU	11	1540	15290	RUSS	RL P1	250	12578	569	33	12.35N	97.05E	FE 318C	DS 326B	LV 316A				

2150=NU	13	0812	15290	RUSS	RL	G15	250	0	0	0	47.94N	131.88E	FE 314C	HL 314C						
2151=NU	13	0642	15290	RUSS	RL	G15	250	0	0	0	47.00N	129.08E	IV 318D	HL 313C						
2152=NU	13	1240	15290	RUSS	RL	G15	250	5713	253	63	58.87N	156.50E	LV 317D	DS 328C	AN 289C					
2153=NU	16	1520	15290	RUSS	RL	P1	250	1516	270	51	56.60N	145.56E	KI 328B	AL 333A	FE 316B	GI 356D	DS 325A			
2154=NU	15	1642	15405	RUSS	DW			1554	520	67	50.88N	141.24E	LV 316B	KI 327C	HL 318C	DS 323B				
2155=NU	19	1511	17795	RUSS	DW			1973	787	67	48.86N	132.82E	IV 319D	HL 315C	FE 314C					
2156=NU	7	0111	11885	TB	RL	HA	250	0	0	0	57.76N	145.94E	LV 322C	AN 293C						
2157=NU	6	1610	11885	UKR	RL	P5	250	1402	454	54	50.49N	137.16E	LV 320D	HL 317C	AN 289C	DS 323C	KI 327C			
2158=NU	6	1842	11885	UKR	RL	P5	250	1248	422	56	52.57N	141.93E	HL 320C	DS 324C	AN 288C					
2159=NU	9	0544	11885	UKR	RL	P5	250	1548	564	52	46.42N	133.46E	LV 316D	HL 312C	AN 288C	GI 319D				
2160=NU	10	1642	11885	UKR	RL	P5	250	0	0	0	60.37N	162.26E	DS 326C	AL 329C						
2161=NU	7	1942	11895	hung	RFE	G1B	250	1773	330	55	53.10N	144.97E	IV 318C	KI 326C	HL 320D	FE 317C	DS 321B	AN 286C		
2162=NU	8	1940	11895	hung	RFE	G1B	250	4369	315	52	52.90N	141.25E	IV 318B	KI 330C	FE 317B	AN 288C	DS 320B			
2163=NU	9	1840	11895	hung	RFE	G1B	250	12337	156	74	61.97N	167.68E	KI 329D	FE 316C	AN 291C					
2164=OO	14	0540	7245	CZEC	RFE	B7	100	0	0	0	48.25N	17.78E	SS 44C	VB 43B						
2165=OO	8	0614	11935	RUSS	RL	HA	250	0	0	0	55.33N	.46W	PS 41C	LR 45B						
2166=PF	10	1401	11875	DARI	RFE	L5	100	0	0	0	59.20N	23.26E	N1 140C	N0 80C						
2167=PF	6	2231	11770	KAZA	RL	HB	250	0	0	0	74.71N	172.73W	BK 0	AN 338C						
2168=PF	9	2244	11770	KAZA	RL	HB	250	0	0	0	.56S	53.93E	GI 39C	AN 333D						
2169=PF	12	1416	15370	KAZA	RL	HB	250	0	0	0	19.28N	73.63E	LR 31C	DS 356C						
2170=PF	13	1411	15370	KAZA	RL	HB	250	0	0	0	82.64N	117.34E	FE 351C	DS 354C						
2171=PF	12	1810	15130	LAT	RFE	G15	250	1851	510	42	47.32N	80.04E	IV 343C	HL 325A	FE 352C	AN 321C				
2172=PF	15	1812	15130	LAT	RFE	G15	250	0	0	0	55.86N	147.63E	HL 325C	AN 289C						
2173=PF	17	1816	15130	LAT	RFE	G15	250	2014	479	29	53.21N	85.74E	AN 327B	GI 2D	DS 345C	HL 325B	FE 340B			
2174=PF	16	1842	15130	LAT	RFE	G15	250	0	0	0	0.00N	0.00E	h1 326B	fe 351C	gi 340D					
2175=PF	11	1514	15130	LITH	RFE	P6	250	0	0	0	38.04N	67.62E	HL 324C	FE 352C						
2176=PF	17	1510	15130	LITH	RFE	P6	250	1881	548	28	42.48N	88.56E	PS 11C	LV 343C	HL 320B	FE 340B	AN 312B			
2177=PF	13	1810	15425	RUS	IBA			0	0	0	53.82N	34.10E	SS 36C	BK 70B						
2178=PF	13	0041	15130	RUSS	RL	G1B	250	0	0	0	37.21N	75.45E	HL 319C	AN 324C						
2179=PF	15	2319	15130	RUSS	RL	G15	250	0	0	0	70.60N	113.27E	GI 349C	AN 326C						
2180=PF	16	1740	15290	RUSS	RL	P1	250	0	0	0	0.00N	0.00E	mu 75C	ko 68B						
2181=PF	14	0101	15355	RUSS	RL	G2B	250	0	0	0	0.00N	0.00E	bk 75B	bd 66B	be 32C					
2182=PF	17	0001	15355	RUSS	RL	G2B	250	0	0	0	61.86N	52.79E	N3 115B	N1 85B						
2183=PF	15	1201	21500	RUSS	RL	G1A	250	1645	259	136	41.65N	78.61E	ro 0C	BD 67B	N1 90B	BL 75C	IT 75C	KR 80C		
2184=PF	23	1201	17610	TURK	RL	L6	100	0	0	0	0.00N	0.00E	ro 50C	bd 67B	bk 0					
2185=PF	17	1943	15380	UKR	RL	P3	250	0	0	0	55.07N	106.29E	HL 324B	GI 346C						
2186=PK	10	1746	11875	RUSS	RL	L5	100	0	0	0	55.72N	12.46E	VB 37C	AL 40C						
2187=PK	11	0901	21455	RUSS	RL	G2B	250	0	0	0	51.46N	35.92E	N1 130C	N0 100B						
2188=PL	11	1542	21625	????	????	????	????	0	0	0	36.36N	45.69E	VB 41B	AL 37C						
2189=PL	9	2312	11935	CZEC	RFE	G9	50	9939	1310	156	23.05N	62.80E	LR 37C	AL 37D	GI 18C					
2190=PL	17	0201	7190	RUSS	RL	G4B	250	974	62	180	50.62N	12.45E	RO 0	VB 43D	PS 45D	LR 46C				
2191=PL	13	0311	7210	RUSS	DW			0	0	0	0.00N	0.00E	bk 0	mu 80B	it 90D					
2192=PL	17	0325	7285	RUSS	DW			0	0	0	47.73N	68.75E	KR 70B	KO 67C						
2193=PL	20	0131	9645	RUSS	RL	B8	100	2342	104	107	50.52N	31.22E	BD 82B	LR 42C	BE 43C					
2194=PL	9	0401	11875	RUSS	RL	L6	100	0	0	0	90.00N	90.00W	RO 0C	BK 0						
2195=PL	10	2350	11875	RUSS	RL	L6	100	0	0	0	15.58N	59.19E	LR 46C	GI 25C						
2196=PL	17	2201	15340	RUSS	RL	L4	100	0	0	0	51.71N	16.86E	RD 85C	BL 110C						
2197=PL	15	2010	15370	RUSS	RL	HB	250	3637	569	133	47.57N	35.68E	VB 38D	SS 38C	PS 39C	LR 44B	GI 24D	AL 33B		
2198=PL	20	1335	17725	RUSS	RL	G10	50	783	62	125	44.74N	36.04E	IT 108B	MU 93D	BL 108B					
2199=PL	24	1912	17750	RUSS	RL	HC	250	0	0	0	62.63N	49.66W	LR 26D	DS 32C						
2200=PL	20	0541	17760	RUSS	RL	L3	100	3148	564	96	56.63N	1.46W	VB 37C	SS 35C	LR 44C					
2201=PL	24	0609	17760	RUSS	RL	L3	100	0	0	0	58.79N	7.27E	BK 0	N0 91B						
2202=PL	22	1510	17795	RUSS	DW			0	0	0	45.57N	67.67W	BE 41C	PS 43C						
2203=PL	21	2110	17885	RUSS	RL	G18	10	2009	472	127	52.75N	19.46E	KI 31C	VB 37C	FE 20C	LV 28C	DS 26C	BE 48B		
2204=PL	21	1646	17885	RUSS	RL	G18	10	788	85	47	51.82N	59.12W	VB 36C	LV 26D	DS 27C	BE 46C	LR 16D			
2205=PL	22	1901	17885	RUSS	RL	G18	10	383	110	177	56.39N	12.44E	RO 0C	BE 45B	PS 38B	KI 35C	CA 40C	AL 40B		
2206=PL	22	2010	17885	RUSS	RL	G18	10	2362	259	105	57.65N	2.44W	PS 39C	LR 42B	GI 36C	DS 34B	BE 48B	CA 43C		
2207=PL	23	2135	17885	RUSS	RL	G18	10	0	0	0	47.96N	18.29E	MU 90D	KO 84B						
2208=PL	24	2031	17885	RUSS	RL	G18	10	1557	162	176	46.07N	27.76E	N3 174B	KI 33B	DS 32C					
2209=PL	21	2117	17895	RUSS	RL	G8	250	6321	597	133	45.25N	33.60E	BE 49B	LR 42B	DS 25C					

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2317=RA	24	1511	9715	RUSS	DW		0	0	0	50.53N	134.10E	HL 317C	AN 291C				
2318=RA	8	1025	11770	RUSS	RL	B6	100	0	0	60.86N	143.35E	LR 341B	FE 321C				
2319=RA	7	1440	11825	RUSS	RL	P2	250	7966	465	42	44.88N	124.23E	LV 319B	FE 315B	DS 324B	AN 294C	
2320=RA	7	0243	11855	RUSS	RL	G10	50	7661	447	48	51.46N	136.44E	LV 319C	FE 313C	AN 291C		
2321=RA	4	0843	11885	RUSS	RL	L7	100	1472	422	50	46.98N	133.61E	FE 313C	DS 324B	AN 288C	HL 312C	PS 334C LV 319C
2322=RA	4	0740	11885	RUSS	RL	L7	100	1558	312	45	45.90N	128.74E	FE 313C	DS 324B	AN 288C	HL 312C	PS 334C LV 319C
2323=RA	5	0610	11885	RUSS	RL	L7	100	1147	279	46	45.13N	127.79E	FE 313C	DS 324B	AN 288C	HL 312C	PS 334C LV 319C
2324=RA	6	0611	11885	RUSS	RL	L7	100	1103	273	47	47.08N	129.77E	FE 313C	DS 324B	AN 288C	HL 312C	PS 334C LV 319C
2325=RA	5	1040	11885	RUSS	RL	L7	100	1075	211	57	54.06N	144.08E	FE 313C	DS 324B	AN 288C	HL 312C	PS 334C LV 319C
2326=RA	5	1410	11885	RUSS	RL	P5	250	1725	347	46	47.51N	123.32E	FE 313C	DS 324B	AN 288C	HL 312C	PS 334C LV 319C
2327=RA	5	0817	11885	RUSS	RL	L7	100	5789	264	50	53.40N	141.04E	FE 313C	DS 324B	AN 288C	HL 312C	PS 334C LV 319C
2328=RA	6	1110	11885	RUSS	RL	L7	100	750	56	93	62.47N	166.10W	FE 313C	DS 324B	AN 288C	HL 312C	PS 334C LV 319C
2329=RA	6	0906	11885	RUSS	RL	L7	100	1392	159	86	57.78N	178.98E	FE 313C	DS 324B	AN 288C	HL 312C	PS 334C LV 319C
2330=RA	5	1246	11885	RUSS	RL	L7	100	1661	374	45	48.48N	127.52E	FE 313C	DS 324B	AN 288C	HL 312C	PS 334C LV 319C
2331=RA	7	0641	11885	RUSS	RL	L7	100	1059	271	48	46.28N	131.63E	FE 313C	DS 324B	AN 288C	HL 312C	PS 334C LV 319C
2332=RA	7	0810	11885	RUSS	RL	L7	100	982	311	52	48.96N	135.14E	FE 313C	DS 324B	AN 288C	HL 312C	PS 334C LV 319C
2333=RA	8	0710	11885	RUSS	RL	L7	100	1041	362	55	47.15N	134.86E	FE 313C	DS 324B	AN 288C	HL 312C	PS 334C LV 319C
2334=RA	8	0610	11885	RUSS	RL	L7	100	1265	500	65	48.10N	133.25E	FE 313C	DS 324B	AN 288C	HL 312C	PS 334C LV 319C
2335=RA	8	1448	11885	RUSS	RL	P5	250	5569	703	33	40.78N	120.49E	FE 313C	DS 324B	AN 288C	HL 312C	PS 334C LV 319C
2336=RA	8	1342	11885	RUSS	RL	L7	100	16128	786	32	22.88N	105.12E	FE 313C	DS 324B	AN 288C	HL 312C	PS 334C LV 319C
2337=RA	8	1029	11885	RUSS	RL	L7	100	931	391	56	48.28N	136.31E	FE 313C	DS 324B	AN 288C	HL 312C	PS 334C LV 319C
2338=RA	9	0740	11885	RUSS	RL	L7	100	1645	499	55	47.92N	133.51E	FE 313C	DS 324B	AN 288C	HL 312C	PS 334C LV 319C
2339=RA	9	0642	11885	RUSS	RL	L7	100	1356	380	52	49.31N	137.71E	FE 313C	DS 324B	AN 288C	HL 312C	PS 334C LV 319C
2340=RA	9	1310	11885	RUSS	RL	L7	100	1490	385	48	49.12N	131.38E	FE 313C	DS 324B	AN 288C	HL 312C	PS 334C LV 319C
2341=RA	10	0740	11885	RUSS	RL	L7	100	1493	377	51	47.84N	133.83E	FE 313C	DS 324B	AN 288C	HL 312C	PS 334C LV 319C
2342=RA	10	1310	11885	RUSS	RL	L7	100	7334	407	49	51.96N	135.38E	FE 313C	DS 324B	AN 288C	HL 312C	PS 334C LV 319C
2343=RA	6	0440	11915	RUSS	RL	L7	100	1228	484	58	44.48N	131.03E	FE 313C	DS 324B	AN 288C	HL 312C	PS 334C LV 319C
2344=RA	8	0449	11915	RUSS	RL	L7	100	0	0	0	53.78N	148.95E	FE 313C	DS 324B	AN 288C	HL 312C	PS 334C LV 319C
2345=RA	10	0320	11915	RUSS	RL	P1	250	0	0	0	37.66S	79.02E	FE 313C	DS 324B	AN 288C	HL 312C	PS 334C LV 319C
2346=RA	4	1040	11970	RUSS	RL	HA	250	1069	225	56	55.52N	145.76E	FE 313C	DS 324B	AN 288C	HL 312C	PS 334C LV 319C
2347=RA	6	0642	11970	RUSS	RL	G3A	250	7543	222	56	55.66N	145.82E	FE 313C	DS 324B	AN 288C	HL 312C	PS 334C LV 319C
2348=RA	6	0820	11970	RUSS	RL	HA	250	4197	312	51	54.12N	144.03E	FE 313C	DS 324B	AN 288C	HL 312C	PS 334C LV 319C
2349=RA	7	1340	11970	RUSS	RL	HA	250	2361	867	56	44.66N	122.21E	FE 313C	DS 324B	AN 288C	HL 312C	PS 334C LV 319C
2350=RA	14	0710	15130	RUSS	RL	P6	250	19159	879	36	34.89N	113.32E	FE 313C	DS 324B	AN 288C	HL 312C	PS 334C LV 319C
2351=RA	14	0540	15130	RUSS	RL	P6	250	5212	167	62	58.87N	156.48E	FE 313C	DS 324B	AN 288C	HL 312C	PS 334C LV 319C
2352=RA	15	0910	15130	RUSS	RL	P6	250	2634	1002	64	49.92N	138.19E	FE 313C	DS 324B	AN 288C	HL 312C	PS 334C LV 319C
2353=RA	11	0816	15290	RUSS	RL	G15	250	1482	556	61	48.56N	139.02E	FE 313C	DS 324B	AN 288C	HL 312C	PS 334C LV 319C
2354=RA	11	1240	15290	RUSS	RL	G15	250	2465	402	45	48.67N	131.39E	FE 313C	DS 324B	AN 288C	HL 312C	PS 334C LV 319C
2355=RA	13	0811	15290	RUSS	RL	G15	250	1834	673	61	48.14N	132.66E	FE 313C	DS 324B	AN 288C	HL 312C	PS 334C LV 319C
2356=RA	12	1211	15290	RUSS	RL	G15	250	0	0	0	43.31N	129.20E	FE 313C	DS 324B	AN 288C	HL 312C	PS 334C LV 319C
2357=RA	12	0840	15290	RUSS	RL	G15	250	1663	122	73	60.29N	174.13E	FE 313C	DS 324B	AN 288C	HL 312C	PS 334C LV 319C
2358=RA	13	1041	15290	RUSS	RL	G15	250	10577	617	54	50.82N	139.14E	FE 313C	DS 324B	AN 288C	HL 312C	PS 334C LV 319C
2359=RA	13	0940	15290	RUSS	RL	G15	250	0	0	0	7.18S	86.39E	FE 313C	DS 324B	AN 288C	HL 312C	PS 334C LV 319C
2360=RA	13	1241	15290	RUSS	RL	G15	250	5702	409	73	58.69N	162.96E	FE 313C	DS 324B	AN 288C	HL 312C	PS 334C LV 319C
2361=RA	13	0841	15380	RUSS	RL	P3+	500	10577	617	54	50.82N	139.14E	FE 313C	DS 324B	AN 288C	HL 312C	PS 334C LV 319C
2362=RA	13	1141	15380	RUSS	RL	P3+	500	0	0	0	0.00N	0.00E	FE 313C	DS 324B	AN 288C	HL 312C	PS 334C LV 319C
2363=RA	14	1411	15380	RUSS	RL	P3+	500	4074	267	52	54.02N	142.97E	FE 313C	DS 324B	AN 288C	HL 312C	PS 334C LV 319C
2364=RA	14	1310	15380	RUSS	RL	P3+	500	3646	253	62	58.07N	155.43E	FE 313C	DS 324B	AN 288C	HL 312C	PS 334C LV 319C
2365=RA	15	0743	15380	RUSS	RL	P3+	500	5300	431	74	58.42N	165.49E	FE 313C	DS 324B	AN 288C	HL 312C	PS 334C LV 319C
2366=RA	15	1310	15380	RUSS	RL	P3+	500	0	0	0	29.01S	72.25E	FE 313C	DS 324B	AN 288C	HL 312C	PS 334C LV 319C
2367=RA	15	1413	15380	RUSS	RL	P3+	500	0	0	0	0.00N	0.00E	FE 313C	DS 324B	AN 288C	HL 312C	PS 334C LV 319C
2368=RA	18	0448	17895	RUSS	RL	P1	250	7096	923	25	30S	93.83E	FE 313C	DS 324B	AN 288C	HL 312C	PS 334C LV 319C
2369=RA	20	0840	17895	RUSS	RL	P1+	500	0	0	0	59.09N	175.01W	FE 313C	DS 324B	AN 288C	HL 312C	PS 334C LV 319C







[illegible]





2658=UA	6	1113	11885	RUSS	RL	L7	100	964	80	121	49.13S	179.65E	ko	43B	IT	58B	IT	58B	KR	66A	BK	63B		
2659=UA	6	0846	11885	RUSS	RL	L7	100	0	0	0	54.75N	20.50E	KR	63B	IT	78C								
2660=UA	16	2001	15340	RUSS	RL	L4	100	0	0	0	52.34N	22.69E	RO	30C	AL	39C								
2661=UA	24	0331	9625	UKR	RL	P4	250	0	0	0	55.35N	34.51E	N2	140C	N0	90C								
2662=UB	20	1101	17610	KAZA	RL	L6	100	0	0	0	57.15N	37.50E	EN	94B	VB	29C								
2663=UD	4	2131	11935	BULG	RFE	G9	50	69	4	180	51.41N	7.27E	BD	95C	BK	0	SS	43C	PS	44C	LR	42C		
2664=UD	7	0501	11855	CZEC	RFE	G3B	250	0	0	0	54.62N	16.71E	N3	195B	N0	120B								
2665=UD	21	1438	17835	CZEC	RFE	G11	50	0	0	0	25.47N	103.33E	N2	83C	N0	70C								
2666=UD	23	1611	17835	CZEC	RFE	G11	50	1645	500	128	50.45N	21.84E	AN	5C	LR	46C	BE	47B	CA	48C				
2667=UD	23	1831	17835	CZEC	RFE	G11	50	4	3	115	51.38N	7.27E	BD	96B	BK	0	KR	96A	it	127A				
2668=UD	4	0701	11855	RUSS	RL	HA	250	0	0	0	0.00N	0.00E	bd	110B	lr	44C								
2669=UD	4	1704	11875	RUSS	RL	L5	100	0	0	0	56.02N	15.65W	VB	39C	LR	46D								
2670=UD	6	1601	11905	RUSS	DW			0	0	0	51.67N	12.45E	RO	0C	BK	78B								
2671=UD	4	1901	11935	RUSS	RL	P2	250	72	28	116	49.34N	22.57E	N2	170B	N1	155B	N0	128B	BO	93C	BK	94A	LR	47B
													HE	47C	AN	4C								
2672=UD	5	1931	11935	RUSS	RL	P2	250	0	0	0	0.00N	0.00E	n3	185B	bk	0	n2	170B						
2673=UD	22	1901	17885	RUSS	RL	G18	10	0	0	0	51.35N	12.45E	RO	0C	BD	90C								
2674=UD	18	1202	9695	hung	RFE	B5	100	54	18	109	48.46N	21.06E	n1	153B	MU	83B	KR	102A	KO	80A	IT	123A	N0	127C
2675=UD	19	1301	9695	hung	RFE	B5	100	51	13	127	58.26N	7.27E	N0	123B	bd	94B	BK	0	BK	0				
2676=UD	20	1231	9695	hung	RFE	B5	100	0	0	0	0.00N	0.00E	bd	94C	n0	115B	bk	0	en	161C				
2677=UD	23	0631	9695	hung	RFE	G1A	250	0	0	0	0.00N	0.00E	ro	30C	bk	95B	bd	99A						
2678=UD	7	1001	11895	hung	RFE	G1B	250	537	20	0	53.40N	7.27E	BK	0	LR	49C	CA	49C	BE	47C	BK	0		
2679=UD	9	1616	11895	hung	RFE	G1B	250	535	14	179	52.13N	7.27E	BK	0	SS	43D	BE	52B						
2680=UD	10	1131	11895	hung	RFE	G1B	250	0	0	0	0.00N	0.00E	n1	156B	n0	123B	bd	5C	bk	0				
2681=UN	4	0931	11770	RUSS	RL	B6	100	131	37	77	58.40N	31.75E	N0	80B	bl	60B	bl	60B	KO	42B	KO	43B	KR	55B
													KR	55B										
2682=UR	18	2110	9670	????	????????????			0	0	0	54.67N	46.01E	MU	60C	IT	73B								
2683=UR	10	1410	11700	????	????????????			5222	465	144	50.62N	46.20E	AL	29A	SS	41D	BE	35C						
2684=UR	4	1940	11875	ARM	RL	L6	100	0	0	0	57.54N	36.54E	AN	356C	LR	32C								
2685=UR	9	0101	11875	ARM	RL	L6	100	954	94	46	48.44N	21.15E	RO	40C	AN	6B	SS	44C						
2686=UR	6	2001	6115	CZEC	RFE	B3	100	0	0	0	0.00N	0.00E	bd	60C	bk	0	ko	50B						
2687=UR	11	2331	7245	CZEC	RFE	G12	50	0	0	0	0.00N	0.00E	ro	0C	n1	130C	n0	100B	bd	67B	it	65C	bl	60C
													ko	58A	mu	67C								
2688=UR	14	2231	7245	CZEC	RFE	G12	50	196	79	130	46.91S	172.65W	BK	0	MU	68D	KO	56C	it	100C	BL	70D		
2689=UR	23	2001	9505	EST	RFE	HA	250	0	0	0	0.00N	0.00E	ro	0C	ko	55B	bl	65B						
2690=UR	12	0231	7180	GEOR	RL	L4	100	0	0	0	70.44N	167.55W	RO	0C	AN	330D								
2691=UR	8	0201	11875	GEOR	RL	L6	100	0	0	0	70.72N	167.55W	RO	0C	AN	331D								
2692=UR	23	2306	9660	KAZA	RL	HC	250	1198	25	1	54.24N	7.27E	BK	0	BK	0	SS	38C						
2693=UR	24	2231	9660	KAZA	RL	HC	250	0	0	0	0.00N	0.00E	n1	114B	n2	121B	n0	87B	bd	64B				
2694=UR	23	1412	17750	KAZA	RL	HC	250	0	0	0	0.00N	0.00E	bk	0	n2	127B								
2695=UR	15	2331	15370	KIRG	RL	B7	100	0	0	0	54.84N	12.45E	RO	0C	BD	64A								
2696=UR	4	1431	11970	LAT	RFE	HA	250	1153	201	102	54.66N	38.57E	BD	68C	LR	33B	BE	39C	AL	30C				
2697=UR	4	0310	11905	PASH	DW			537	36	131	46.47S	172.86W	BK	0D	kr	67A	it	70B	bl	75C	MU	60C	KO	50A
2698=UR	5	0320	11905	PASH	DW			240	32	91	55.37N	35.19E	KR	65B	IT	74A	ko	49A	MU	55B	bk	0		
2699=UR	6	0316	11905	PASH	DW			2007	121	104	54.87N	53.29E	KR	64B	MU	60D	ko	50A	IT	70B	bl	75C		
2700=UR	7	0316	11905	PASH	DW			148	21	81	53.40N	24.60E	KO	52B	bl	72B	MU	55B	BK	71A	BK	71A		
2701=UR	8	0340	11905	PASH	DW			0	0	0	52.87N	20.48E	KR	75C	KO	50B								
2702=UR	9	0340	11905	PASH	DW			2201	443	174	66.55N	34.89E	FE	8B	AN	358B	DS	18C						
2703=UR	10	0333	11905	PASH	DW			1057	349	146	56.61N	36.88E	bk	0	VB	33C	DS	18B	BE	38C	AN	356B	AL	29A
2704=UR	9	1410	11705	RUS	IBA			0	0	0	67.34N	7.27E	BK	0	AL	29C								
2705=UR	8	0101	6050	RUSS	RL	B4	100	233	27	80	55.14N	27.82E	KR	65A	mu	60B	IT	75C	KO	50B	BL	70B		
2706=UR	6	1931	6105	RUSS	RL	L9	20	0	0	0	0.00N	0.00E	ro	0C	bl	65D								
2707=UR	9	0001	6135	RUSS	RL	B3	100	0	0	0	53.93N	27.73E	N2	155C	SS	37C								
2708=UR	7	2101	6170	RUSS	RL	L5	100	1629	127	106	54.26N	56.99E	bk	0	BD	62B	MU	60C	IT	70C	KR	65B	BL	70D
2709=UR	16	0231	7190	RUSS	RL	G4B	250	0	0	0	54.02N	7.27E	BD	62B	BK	0								
2710=UR	12	1731	7220	RUSS	RL	L2	100	0	0	0	53.76N	7.27E	BD	65B	BK	0								
2711=UR	12	1631	7220	RUSS	RL	L2	100	0	0	0	55.63N	20.22E	BD	65B	IT	70C								
2712=UR	15	0031	7220	RUSS	RL	L2	100	930	97	99	54.45N	44.95E	BD	64B	KR	70C	KO	60C	IT	75C				
2713=UR	14	1831	7220	RUSS	RL	L2	100	0	0	0	53.76N	7.27E	BD	65B	BK	0								
2714=UR	16	1531	7220	RUSS	RL	L2	100	0	0	0	55.72N	26.06E	BD	66B	BL	62B								





2825=VN	14	1517	15380	UKR	RL	P3	250	3817	1057	15	28.21N	63.06E	HL 329D	AN 330B	LR 40D			
2826=VN	18	1647	17895	UKR	RL	P4	250	0	0	0	42.13N	71.18E	HL 325C	AN 329C				
2827=VN	23	1540	17750	UZBE	RL	HC	250	3263	941	165	3.63S	72.05E	AL 37C	PS 37C	DS 356C			
2828=VU	6	1525	11905	RUSS	DW			0	0	0	33.88N	118.72E	IT 55B	MU 55D				
2829=VU	23	1740	17885	RUSS	RL	G18	10	0	0	0	0.00N	0.00E	mu 72A	ko 72B				
2830=WA	24	1740	17685	????	????	????	????	2071	710	172	57.40N	42.67E	KI 16C	HL 350C	DS 17B	AN 351C		
2831=WA	8	1301	11770	RUSS	RL	B6	100	0	0	0	54.46N	48.27E	N0 82B	N3 135B				
2832=WA	7	1433	11825	RUSS	RL	P2	250	0	0	0	58.15N	42.49E	N3 140C	AL 26C				
2833=WA	14	0431	15370	RUSS	RL	B7	100	0	0	0	56.06N	53.55E	BD 61A	KO 56B				
2834=WG	4	0201	5955	BR	RL	HD	250	0	0	0	49.43N	51.20E	BK 76A	VB 29C				
2835=WG	6	0301	5995	RUSS	RL	L7	100	0	0	0	53.76N	7.27E	BD 65B	BK 0				
2836=WG	14	0340	7285	RUSS	DW			0	0	0	51.50N	7.27E	SS 41C	BK 0				
2837=WG	14	0151	7190	TB	RL	P3	250	2154	340	93	57.76N	10.61W	SS 32C	VB 36C	CA 45C	BE 49C		
2838=WK	16	0301	15340	AZ	RL	L4	100	0	0	0	0.00N	0.00E	n1 124B	bk 0				
2839=WK	15	2331	15370	KIRG	RL	B7	100	0	0	0	90.00N	90.00W	ko 0C	BK 0				
2840=WK	16	2331	15370	KIRG	RL	B7	100	0	0	0	0.00N	0.00E	ro 0	bd 89A	bk 0			
2841=WK	10	1031	11875	RUSS	RL	L5	100	0	0	0	54.35N	38.11E	N0 90C	N2 135C				
2842=WK	12	0201	15370	RUSS	RL	B7	100	0	0	0	0.00N	0.00E	n2 135B	ro 0C	n1 110C	n0 90B		
2843=WK	13	0131	15370	TAJI	RL	B7	100	0	0	0	0.00N	0.00E	ro 0C	bd 94B	n2 138B			
2844=WK	14	2201	15370	TAJI	RL	B7	100	932	45	0	60.76N	7.27E	ro 70C	BK 0	LR 37C	BK 0		
2845=WK	13	0001	15370	UZBE	RL	B7	100	126	39	108	48.14N	24.76E	ko 50C	bk 0	BD 94A	PS 44C	LR 44C	
2846=WQ	19	1643	9715	RUSS	DW			0	0	0	37.91N	123.20E	LV 314C	FE 312B				
2847=WQ	5	1040	11885	RUSS	RL	L7	100	1476	448	48	46.04N	132.67E	KI 325C	GI 318D	FE 314C	AL 338C	HL 312C DS 322B	
													AN 287C					
2848=WQ	5	0810	11885	RUSS	RL	L7	100	1147	436	58	45.46N	132.64E	LV 314B	HL 311B	GI 322C	DS 326C	AN 288C	
2849=WQ	6	1112	11885	RUSS	RL	L7	100	0	0	0	0.00N	0.00E	fe 320C	an 288C	ds 320C			
2850=WQ	5	1240	11885	RUSS	RL	L7	100	1501	341	47	47.78N	132.38E	LV 319C	AN 288B	DS 324C	HL 313C	GI 334D FE 316B	
2851=WQ	6	0948	11885	RUSS	RL	L7	100	1382	236	102	56.69N	147.70W	DS 326C	GI 314B	KI 321C			
2852=WQ	7	0840	11885	RUSS	RL	L7	100	0	0	0	0.00N	0.00E	lr 356D	hl 318C	an 287C	al 323B		
2853=WQ	8	1446	11885	RUSS	RL	P5	250	0	0	0	41.31N	119.96E	DS 325B	AN 293C				
2854=WQ	5	1543	11915	RUSS	DW			4191	288	57	56.02N	149.68E	AN 288C	LV 320C	DS 323B	FE 314C		
2855=WQ	7	1640	11915	RUSS	DW			0	0	0	59.28N	168.86E	LV 320D	AN 283C				
2856=WQ	8	1640	11915	RUSS	DW			0	0	0	48.39N	136.58E	LV 316C	AN 287C				
2857=WQ	8	1549	11915	RUSS	DW			7525	448	40	44.39N	131.40E	VB 337C	DS 321C	AN 287B			
2858=WQ	8	1746	11915	RUSS	DW			2729	349	53	49.94N	148.76E	LV 314B	DS 317B	AN 280C			
2859=WQ	9	1648	11915	RUSS	DW			5167	476	47	48.24N	136.07E	LV 316B	KI 329C	AN 287C			
2860=WQ	10	0319	11915	RUSS	RL	P1	250	0	0	0	36.78S	78.85E	AN 286B	GI 28C				
2861=WQ	9	1518	11915	RUSS	DW			0	0	0	0.00N	0.00E	Jv 317B	ki 327C	ds 317B			
2862=WQ	10	1710	11915	RUSS	DW			1126	568	17	11.90S	86.83E	VB 40C	LV 315B	KI 328C	DS 326C	AN 291D	
2863=WQ	6	0641	11970	RUSS	RL	G3A	250	0	0	0	0.00N	0.00E	ds 327C	gi 301D	an 294C			
2864=WQ	5	1224	11970	RUSS	RL	HA	250	1683	534	48	47.00N	128.50E	HL 313C	FE 316C	GI 330C	AN 291C		
2865=WQ	7	1313	11970	RUSS	RL	HA	250	3165	155	63	58.40N	158.06E	LV 318C	FE 315B	DS 324C	AN 287B		
2866=WQ	9	1244	11970	RUSS	RL	HA	250	3188	429	39	47.67N	130.33E	AL 335B	VB 344B	KI 327C	FE 319C	DS 325B AN 288C	
2867=WQ	10	1240	11970	RUSS	RL	HA	250	4260	531	36	43.85N	125.85E	GI 327C	FE 317C	DS 325C	AN 289C	AL 339B	
2868=WQ	15	0748	15380	RUSS	RL	P3+	500	6777	561	44	44.26N	131.24E	LV 315C	AN 287C	DS 321B			
2869=WQ	5	2010	11885	UKR	RL	P5	250	0	0	0	44.16N	61.14E	HL 332D	AN 337C				
2870=WQ	6	1841	11885	UKR	RL	P5	250	3869	182	66	58.83N	163.64E	FE 312B	DS 325C	AN 285C			
2871=WQ	6	2018	11885	UKR	RL	P5	250	0	0	0	47.86N	137.20E	HL 314D	AN 286C				
2872=WQ	7	2246	11885	UKR	RL	P5	250	0	0	0	61.88N	158.14W	AN 284C	LV 329C				
2873=WQ	13	1710	15380	UKR	RL	P3	250	0	0	0	57.54N	168.41E	KI 325C	DS 322B				
2874=WR	9	0301	6060	RUSS	DW			0	0	0	90.00N	90.00W	RO 0	BK 0				
2875=WR	6	1631	6105	RUSS	RL	L9	20	0	0	0	49.41N	12.45E	RO 0C	KO 50B				
2876=WR	8	1731	6105	RUSS	RL	L9	20	0	0	0	0.00N	0.00E	ro 40C	bl 68B	ko 47B			
2877=WR	9	1631	6105	RUSS	RL	L9	20	0	0	0	0.00N	0.00E	ro 0C	bd 60C	ko 51A	bk 0		
2878=WR	9	1731	6105	RUSS	RL	L9	20	0	0	0	0.00N	0.00E	ro 0C	bk 0	ko 31A	bl 70D		
2879=WR	10	1840	6105	RUSS	RL	L9	20	0	0	0	0.00N	0.00E	bl 90D	it 70D	ko 50B			
2880=WR	4	2020	6170	RUSS	RL	L5	100	5315	323	121	48.01N	82.26E	KR 65D	IT 65C	KO 60B	MU 65C	bl 45B	
2881=WR	16	0131	7255	RUSS	RL	G4B	250	0	0	0	58.96N	7.27E	BK 0	N0 79B				
2882=WR	13	2231	7295	RUSS	RL	L3	100	0	0	0	57.88N	23.60E	RO 20C	N0 88B				
2883=WR	14	2131	7295	RUSS	RL	L3	100	0	0	0	53.40N	24.07E	RO 30C	BD 75C				









98

APPENDIX B  
COMPOSITE LOCATION OF JAMMERS  
JULY 1988

129 HITS E-file=EEEE

D-file=DDDD

1=A5 46 63N 22.14E 695 83 121deg 17 93 of 94 bearings  
 315.00 316.00 317.00 318.00 319.00 320.00 321.00 322.00 323.00 324.00  
 325.00 326.00 327.00 328.00 329.00 330.00 331.00  
 BE051 KI036 LR047 CA050 VB046 AL042 SS049 PS045 VB043 SS051 PS039 LR048 CA052 BE055 AL046  
 KI037 SS048 DS028 LR050 PS042 GI038 VB046 PS045 LR047 SS049 BD105 BK105 AN338 DS027 KI037  
 LV032 PS044 SS048 LR044 KI035 CA046 LR047 PS045 BE053 AL042 PS045 LR046 VB043 VB042 PS041  
 CA055 BE053 AL048 LR021 PS045 VB044 FE023 AN003 KI037 AL043 LR047 DS024 AN002 DS032 LV026  
 BE051 AN004 FE027 AL045 LV030 FE027 AN004 DS032 AL045 LV027 DS036 VB042 AN002 LR047 PS042  
 LR046 AN004 FE020 DS033 AN358 VB044 GI038 CA050 BE053 AL043 bk000 LR045 AL044 CA051 BE050  
 SS044 GI038 KI038 PS043

2=AB 42.67N 98.69E 12883 508 135deg 2 4 of 6 bearings  
 332.00 333.00  
 KR060 MU060 KR050 IT065 bk000 BD054

3=AG 56.37N 150.07E 632 141 58deg 13 51 of 51 bearings  
 334.00 335.00 336.00 337.00 338.00 339.00 340.00 341.00 342.00 343.00  
 344.00 345.00 346.00  
 LV308 FE309 DS318 FE321 LV309 GI331 DS324 AN290 GI330 FE321 DS326 AN290 LV309 PS339 LV315  
 KI328 FE314 DS322 AN288 VB346 AL331 GI334 AN285 FE321 AN294 FE321 FE310 DS321 FE310 DS318  
 AN288 KI327 LV315 FE311 DS320 AN287 GI338 LV315 FE314 DS325 BD062 BK000 HL326 GI338 SS053  
 LR022 HL325 CA027 BE025 BK000 SS036

4=AL 51.98N 131.48E 705 170 50deg 16 44 of 44 bearings  
 347.00 348.00 349.00 350.00 351.00 352.00 353.00 354.00 355.00 356.00  
 357.00 358.00 359.00 360.00 361.00 362.00  
 LV322 HL315 AN287 AN289 HL315 LV326 AN290 LV320 HL317 DS329 HL323 AN292 HL317 AN296 FE318  
 LV320 AN294 HL317 LV318 HL318 LV313 HL319 DS326 HL319 LV319 DS328 LV327 HL318 HL318 AN293  
 DS327 LV320 HL319 FE316 GI329 FE326 DS332 AN303 AN294 HL316 HL316 LV320 GI324 AN295

5=AH 55.58N 46.68E 978 67 99deg 5 8 of 13 bearings  
 363.00 364.00 365.00 366.00 367.00  
 N0080 N1140 KR055 MU075 BL080 bk000 BD062 bk000 BK065 KR052 IT069 BD059 IT070

6=AN 60.45N 7.27E 654 116 179deg 1 5 of 5 bearings  
 368.00  
 BK000 VB032 CA041 BE041 SS033

7=AU 34.44N 71.14E 0 0 0deg 1 2 of 2 bearings  
 559.00  
 N3120 N0090

8=AV 51.43N 7.27E 84 6 180deg 3 6 of 8 bearings  
 560.00 561.00 562.00  
 BD095 BK000 BE003 SS045 AN356 BK000 BE037 AN357

9=AW 50.51N 133.89E 1175 368 52deg 5 12 of 12 bearings  
 563.00 564.00 565.00 566.00 567.00  
 AN292 LV322 HL315 AN293 LV320 HL319 FE320 AN289 KI336 AN289 HL317 KI321

10=BI 48.44N 23.03E 198 47 116deg 5 21 of 23 bearings  
 568.00 569.00 570.00 571.00 572.00  
 N0132 N1156 bk000 BD094 bk050 CA050 VB042 BE048 LR047 BD095 SS055 PS041 LR046 CA050 BE047  
 SS049 PS043 VB038 SS039 BE048 CA045 LR045 PS044

11=BA 47.75N 53.98E 659 115 120deg 2 8 of 10 bearings  
 573.00 574.00  
 N0085 BD074 N1110 bk000 IT086 KO074 BL080 MU083 BK000 AN343

12-BD 52.72N 19.00E 72/1 871 124deg 2 5 of 5 bearings  
 575.00 576.00  
 Lk041 DS028 Lk044 CA045 BE047

13-BF 51.09N 137.13E 243 45 49deg 157 565 of 589 bearings  
 577.00 578.00 579.00 580.00 581.00 582.00 583.00 584.00 585.00 586.00  
 587.00 588.00 589.00 590.00 591.00 592.00 593.00 594.00 595.00 596.00  
 597.00 598.00 599.00 600.00 601.00 602.00 603.00 604.00 605.00 606.00  
 607.00 608.00 609.00 610.00 611.00 612.00 613.00 614.00 615.00 616.00  
 617.00 618.00 619.00 620.00 621.00 622.00 623.00 624.00 625.00 626.00  
 627.00 628.00 629.00 630.00 631.00 632.00 633.00 634.00 635.00 636.00  
 637.00 638.00 639.00 640.00 641.00 642.00 643.00 644.00 645.00 646.00  
 647.00 648.00 649.00 650.00 651.00 652.00 653.00 654.00 655.00 656.00  
 657.00 658.00 659.00 660.00 661.00 662.00 663.00 664.00 665.00 666.00  
 667.00 668.00 669.00 670.00 671.00 672.00 673.00 674.00 675.00 676.00  
 677.00 678.00 679.00 680.00 681.00 682.00 683.00 684.00 685.00 686.00  
 687.00 688.00 689.00 690.00 691.00 692.00 693.00 694.00 695.00 696.00  
 697.00 698.00 699.00 700.00 701.00 702.00 703.00 704.00 705.00 706.00  
 707.00 708.00 709.00 710.00 711.00 712.00 713.00 714.00 715.00 716.00  
 717.00 718.00 719.00 720.00 721.00 722.00 723.00 724.00 725.00 726.00  
 727.00 728.00 729.00 730.00 731.00 732.00 733.00

gi134 FE322 FE313 DS326 LV316 AN290 DS326 K1329 HL319 FE316 GI330 FE313 LV320 DS326 AN290  
 PS316 LV320 K1315 HL315 FE317 DS325 AN291 AN297 FE314 FE315 AN294 HL314 LV321 AN293 FE318  
 LV320 FE320 AN296 FE311 AN297 LV320 FE318 AN291 HL315 DS328 AN290 LV319 AN287 HL323 DS328  
 HL317 AN289 HL320 FE307 AN285 FE317 LV320 FE317 HL321 LV324 HL318 AN287 DS321 AN290 K1327  
 LV316 LV317 HL316 DS325 LV330 K1329 FE310 AN298 LV323 DS325 AN295 FE314 LV330 GI336 FE318  
 DS322 AN290 AN290 FE311 FE313 AN290 FE316 AN295 LV325 HL318 DS322 FE309 AN291 LV315 DS321  
 AN290 LV316 FE318 LV320 AN290 LV320 FE311 AN289 gi023 AN290 AL330 DS336 LV320 K1327 HL315  
 GI331 BE320 DS325 CA329 AN292 BE329 K1329 AL338 DS327 GI332 CA334 LV318 AN292 FE316 BE341  
 AL338 LV319 K1330 HL314 GI326 DS327 AN291 HL312 LV316 FE316 ps160 AN289 K1322 DS323 AL331  
 LV319 K1327 HL313 GI331 FE317 DS326 AN290 PS336 LV320 GI320 AL328 AN293 K1334 GI332 LV317  
 DS323 AN291 HL315 PS333 AL338 LV317 HL316 FE315 DS324 AN288 LV319 PS335 K1329 GI329 FE316  
 HL315 AN291 DS323 AN289 HL316 AN289 LV318 DS320 LV318 GI328 DS325 AN289 LV319 FE314 AN288  
 AN285 LV319 GI325 HL317 AN294 FE313 FE313 LV316 AN293 LV322 DS325 FE313 LV321 HL312 GI343  
 FE314 DS326 AN289 LV321 HL313 GI329 FE314 DS326 AN290 LV315 FE313 AN289 LV318 FE313 AN298  
 LV321 HL315 GI332 FE319 DS326 AN292 LV320 HL315 FE313 DS325 AN291 LV318 AN290 AN293 LV321  
 LV318 HL316 FE313 DS325 AN290 LV318 HL315 AN290 LV315 HL312 FE313 AN289 DS326 LV320 AN289  
 AN288 LV319 LV317 AN291 FE313 AN292 LV318 HL313 GI323 FE312 DS325 AN290 LV320 AN289 LV317  
 an298 GI029 FE314 AN289 LV320 HL314 GI324 DS325 FE312 an189 HL312 FE313 AN289 LV321 gi024  
 FE313 DS326 AN290 HL315 LV316 DS326 AN290 FE313 FE318 AN289 LV319 LR342 K1328 HL319 FE318  
 DS320 AL335 AN287 GI031 AN289 AL334 DS328 LV348 K1339 AN290 GI319 FE316 FE316 AN289 FE315  
 LV318 DS324 AN290 FE314 LV318 HL315 AN289 DS327 LV323 K1325 GI323 FE313 DS325 AN291 HL318  
 LV315 VB338 K1336 DS324 VB335 AN286 FE316 HL315 DS327 AN290 AN288 FE318 GI331 K1328 LV321  
 FE312 DS328 AN282 FE318 HL316 HL315 K1332 DS326 FE313 AN289 LV320 LV320 K1328 FE314 AN289  
 DS324 AN289 FE314 GI327 AN290 FE317 AN289 LV321 K1326 FE315 DS322 AN289 LV319 K1328 gi151  
 FE317 DS326 AN287 K1326 GI322 FE318 AN290 LV314 gi149 FE317 AN284 K1326 gi149 FE317 K1326  
 FE318 AN289 DS326 LV322 FE313 AN290 FE316 DS327 HL317 AN288 AN289 HL318 FE318 HL316 FE314  
 AN290 DS326 HL315 DS326 LV318 K1327 HL315 FE317 DS326 AN288 gi020 AN292 GI326 FE317 LV359  
 DS327 AN289 HL317 HL315 LV316 GI018 AN289 FE316 AN290 HL316 fe136 gi025 AN292 DS326 LV315  
 K1327 gi143 DS326 DS325 AN289 LV315 HL318 FE314 DS326 DS324 LV317 FE313 AN290 GI017 AN291  
 LV319 FE313 DS325 AN289 DS326 FE313 HL314 AN289 LV321 FE315 AN290 HL313 LV318 GI328 LV318  
 AN287 DS326 K1326 HL317 FE316 LV325 AN288 DS327 VB045 gi015 gi151 DS321 LV320 K1324 DS326  
 AN289 K1325 FE315 LV318 gi019 FE317 DS326 AN286 DS323 LV315 AN290 AN290 DS323 HL320 AN290  
 LV316 gi149 HL314 GI346 FE312 GI004 AN290 DS322 HL317 LV319 HL315 GI343 FE316 DS326 VB334  
 HL321 FE318 AN286 LV320 HL319 GI330 AN281 HL319 GI330 AN287 HL318 LV314 LV314 HL317 FE310  
 DS323 AN289 LV320 HL318 AN289 LV317 HL312 DS323 AN286 FE313 AN288 gi152 AN288 ki016 AN288  
 AN287 LV320 LV316 HL316 FE313 DS323 AN290 LV317 HL318 FE314 AN289 GI326 FE314 DS324 AN288  
 K1327 LV319 FE314 LV316 K1324 GI323 FE309 DS322 AN289 FE314 DS325 AN290 LV319 FE317 AN290  
 LV317 HL320 gi060 LV324 FE315 AN290 AN287 LV320 DS324 LV318 DS324 AN291 FE318 AN283 DS324

AN288 DS323 AN286 FE316 HL315 gi032 AN289 HL315 AN289 lr040 lv017 ki026 HL318 AN287 HL315  
AN288 FE312 AN288 HL315

14=BM 33.64N 68.26E 10914 2755 1deg 1 3 of 3 bearings  
741.00  
VB027 FE353 LV345

15=BN 57.24N 41.02E 454 132 141deg 5 12 of 12 bearings  
742.00 743.00 744.00 745.00 746.00  
KI034 FE010 AN358 N2125 N0080 GI032 AN356 GI013 FE012 AN355 LV348 AN355

16=BS 54.61N 52.47E 406 143 121deg 5 13 of 15 bearings  
748.00 749.00 750.00 751.00 752.00  
BD062 N2113 AL040 BE034 n2140 N0075 bk000 KR070 IT074 GI345 AN352 AN345 FE358 BD060 KR067

17=BT 50.38N 38.21E 662 161 148deg 2 3 of 4 bearings  
753.00 754.00  
N3155 N0100 bk000 N1128

18=CB 58.81N 7.31E 49 21 91deg 12 19 of 37 bearings  
756.00 757.00 758.00 759.00 760.00 761.00 762.00 763.00 764.00 765.00  
766.00 767.00  
BK000 KI010 PS040 HL333 be026 gi008 BK000 bd065 BK000 bd067 BK000 PS045 LV026 hl323 an298  
DS358 fe351 bl080 mu065 BK000 be026 SS034 GI021 BE025 al015 ds352 fe350 gi001 LV349 fe351  
ds355 n3120 N0090 GI009 PS022 GI001 al013

19=D3 50.29N 14.70E 47 21 95deg 5 15 of 16 bearings  
768.00 769.00 770.00 771.00 772.00  
N2180 BD094 bk000 KO060 MU030 IT135 KR099 BD092 BK093 VB036 SS038 BD097 KO051 KR101 RO030  
BD097

20=D6 41.26N 27.40E 0 0 0deg 1 2 of 2 bearings  
773.00  
KI038 AN002

21=DA 51.14N 7.29E 8 2 23deg 14 50 of 67 bearings  
774.00 775.00 776.00 777.00 778.00 779.00 780.00 781.00 782.00 783.00  
784.00 785.00 786.00 787.00  
BK086 SS042 BE048 AL040 kr058 ko070 it085 bl085 mu055 bl062 ko056 kr093 bl110 ko079 BK000  
BD091 BE049 LR064 SS035 VB035 PS046 AL040 VB042 SS034 VB045 SS034 LR046 CA047 BE050 SS041  
PS043 BE045 ko056 bl065 ro040 n0090 AN329 LR046 BE049 BK000 BD087 BK000 SS035 LR047 VB042  
BE045 PS036 VB038 LR046 SS035 SS035 VB029 BK000 RO000 BK075 VB038 SS042 LR048 PS049 it094  
KR095 ko080 n0088 LR081 SS037 LR041 BE046

22=DK 51.11N 7.27E 16 1 21deg 22 49 of 78 bearings  
788.00 789.00 790.00 791.00 792.00 793.00 794.00 795.00 796.00 797.00  
798.00 799.00 800.00 801.00 802.00 803.00 804.00 805.00 806.00 807.00  
808.00 809.00  
BD080 BK064 BK064 ro070 bd079 BK000 bl105 kr082 ko070 bl090 BD078 RO000 n2150 BK000 CA048  
AL043 KI322 BE050 mu045 KR080 ko065 BK000 BK000 KR085 ko078 RO000 kr077 n2140 n0100 BK080  
BK000 LR041 BE047 CA043 AL041 GI030 it090 ko062 VB043 SS040 GI034 LR041 CA045 LR042 BE044  
SS041 ro035 SS040 mu065 bl100 mu080 ko078 bl085 it097 BK079 BK000 BK000 VB035 VB038 SS045  
BK000 mu077 it095 ko074 LR042 BE042 VB039 SS042 RO000 BK000 n1110 BK000 n0085 RO000 BK000  
BK000 mu075 ko075

23=DM 50.98N 39.06E 455 76 103deg 5 14 of 19 bearings  
810.00 811.00 812.00 813.00 814.00  
BD075 bk000 BL088 IT080 BD075 bk000 GI025 AN330 SS038 KR068 RO050 bk000 bk000 bk000 KR073  
BL090 IT088 MU080 KO075



24=DN 19.71N 91.04E 2490 1475 143deg 2 5 of 5 bearings  
815.00 816.00  
FE310 LV315 HL315 KR084 KO080

25=DP 56.78N 33.16E 67 28 133deg 41 104 of 118 bearings  
817.00 818.00 819.00 820.00 821.00 822.00 823.00 824.00 825.00 826.00  
827.00 828.00 829.00 830.00 831.00 832.00 833.00 834.00 835.00 836.00  
837.00 838.00 839.00 840.00 841.00 842.00 843.00 844.00 845.00 846.00  
847.00 848.00 849.00 850.00 851.00 852.00 853.00 854.00 855.00 856.00  
857.00  
LV008 AN353 FE014 GI025 LV019 AN353 FE011 LR029 AL036 BE040 AN353 N0087 N1118 BD066 N2133  
SS045 AN355 RO030 BK000 BD062 N2130 AN356 LR019 AN355 FE011 AN356 N1125 N0095 N2135 N0090  
GI310 BE036 AL044 RO000 N1120 N0088 RO000 BK000 VB034 AL027 N2133 N1120 N1150 N0085 N3165  
N2145 N1120 N0085 N1120 N0080 VB029 LR037 VB040 SS041 KI023 GI030 DS018 AN355 AL028 N0090  
N2150 SS045 LV317 GI028 AN355 GI038 AL029 VB029 VB030 KI327 AN354 AL028 SS037 PS022 LV018  
LR030 VB035 GI023 AN355 DS006 FE025 N1120 N0090 N1135 N0100 AL029 VB040 BE038 VB033 BK000  
N0088 N1000 VB030 LR034 BE037 RO310 EN093 N3155 N2145 N0100 BK000 N3210 N2200 N0190 IT080  
K0065 N1150 N0095 N2133 N3149 AN355 GI035 FE014 BK000 AN356 FE014 DS016 AN355

26=DT 37.03S 161.20E 14143 1408 133deg 1 3 of 3 bearings  
859.00  
KRD65 IT057 KO070

27=DU 50.32N 127.71E 1562 471 51deg 4 10 of 10 bearings  
860.00 861.00 862.00 863.00  
LV323 FE318 AN295 HL323 AN299 KI326 AN295 HL318 LV313 HL313

28=DW 54.88N 159.99E 563 91 58deg 15 48 of 48 bearings  
864.00 865.00 866.00 867.00 868.00 869.00 870.00 871.00 872.00 873.00  
874.00 875.00 876.00 877.00 878.00  
FE306 AN280 DS318 FE306 AN282 FE306 AN284 FE305 AN280 FE316 AN281 LV316 AN280 FE314 GI316  
AN282 FE305 LV315 HL322 FE311 DS324 KI324 GI320 FE305 AN282 HL313 GI315 FE310 DS320 AN289  
LV315 HL321 FE311 AN278 AN277 LV315 GI025 AN279 GI314 LV317 HL314 KI329 FE310 DS320 LV316  
LV315 AN276 GI026

29=F 42.37N 59.33W 621 169 79deg 1 3 of 4 bearings  
879.00  
PS060 VB043 SS035 AL081

30=FI 52.56N 13.33E 120 4 101deg 7 11 of 15 bearings  
889.00 890.00 891.00 892.00 893.00 894.00 895.00  
VB029 PS032 VB035 AL034 BL095 KR065 BL051 MU035 N0090 N2140 KR100 BL110 KO080 SS038 BK050

31=FL 57.74N 32.62E 156 55 114deg 10 33 of 37 bearings  
896.00 897.00 898.00 899.00 900.00 901.00 902.00 903.00 904.00 905.00  
VB030 GI029 AL024 HL331 DS005 N3160 N0150 N2145 N1120 N0075 BD086 KI021 AN330 VB035 PS040  
LR036 BE039 FE359 GI032 VB035 AN339 AL023 AN306 GI330 RO000 N0085 VB037 LR014 PS020 AL025  
GI018 DS017 AN338 BK080 VB031 BE038 AL025

32=FR 60.88N 29.48E 0 0 0deg 1 2 of 2 bearings  
906.00  
N2140 N0070

33=FU 53.14N 148.17E 1235 586 92deg 3 6 of 6 bearings  
907.00 908.00 909.00  
HL314 AN282 LV346 HL327 HL325 GI326

34=G3 51.15N 7.27E 7 3 177deg 11 49 of 61 bearings  
910.00 911.00 912.00 913.00 914.00 915.00 916.00 917.00 918.00 919.00  
920.00

AN335 PS043 AL040 LR046 HL345 n2168 n1158 BD105 n0130 b1136 KR116 it136 ko100 VB044 AL043  
 AN009 AN003 LR050 BK000 BK000 GI038 AL033 VB020 BD108 it135 mu070 RO000 BK000 RD105 BK000  
 SS046 PS043 LR050 KI039 CA051 BE054 KR115 b1132 mu115 ko108 it131 LR050 PS040 VB044 BK000  
 LV028 PS046 AN003 LR050 AL040 LR050 CA049 BE053 AN002 PS044 BK000 BD107 BE053 VB046 PS043  
 LR051

35=GA

59.22N 31.52E 47 26 133deg 34 61 of 82 bearings  
 922.00 923.00 924.00 925.00 926.00 927.00 928.00 929.00 930.00 931.00  
 932.00 933.00 934.00 935.00 936.00 937.00 938.00 939.00 940.00 941.00  
 942.00 943.00 944.00 945.00 946.00 947.00 948.00 949.00 950.00 951.00  
 952.00 953.00 954.00 955.00  
 N1115 N0075 N2140 N0075 N1115 AN003 LV314 N2150 N0090 VB038 AL032 EN085 BE043 n0090 n3130  
 N1110 N0070 SS037 n3150 n1090 BD052 bk000 n1105 N3160 N1110 N0080 RD068 N2140 bk000 n0090  
 N1115 RD054 N2140 N0088 BD057 it043 kr043 it085 KR065 RL055 n0000 bk000 LR020 AN356 N2140  
 N1121 N1125 N0080 AN358 bk000 KO035 kr065 KR045 ko052 N0084 N3165 N3160 N0090 n0090 N2130  
 N3155 N2135 N1105 N0085 N1125 N0085 N1119 n0000 N2140 N0070 N3155 n1105 N0075 N2140 N1117  
 N3175 n0095 bk000 AN356 KI037 AN357 FE030

36=GD

62.61N 163.06E 199 27 73deg 69 310 of 313 bearings  
 956.00 957.00 958.00 959.00 960.00 961.00 962.00 963.00 964.00 965.00  
 966.00 967.00 968.00 969.00 970.00 971.00 972.00 973.00 974.00 975.00  
 976.00 977.00 978.00 979.00 980.00 981.00 982.00 983.00 984.00 985.00  
 986.00 987.00 988.00 989.00 990.00 991.00 992.00 993.00 994.00 995.00  
 996.00 997.00 998.00 999.00 1000.00 1001.00 1002.00 1003.00 1004.00 1005.00  
 1006.00 1007.00 1008.00 1009.00 1010.00 1011.00 1012.00 1013.00 1014.00 1015.00  
 1016.00 1017.00 1018.00 1019.00 1020.00 1021.00 1022.00 1023.00 1024.00  
 HL326 an328 LV320 FE318 AN294 LV325 HL332 GI328 FE319 AN285 LV323 GI328 AL338 HL327 FE324  
 AN295 BE031 CA342 AN293 AL340 LR030 GI328 AN293 LV323 FE318 PS336 AL339 KI328 HL327 BE331  
 GI316 AL335 LV320 HL326 AN293 KI329 CA334 LR340 AN294 AL332 FE319 LV322 DS325 BE339 PS339  
 LV318 HL320 FE327 DS326 CA330 BE323 AN317 AL317 LR335 AL333 PS334 LV319 KI329 HL326 FE328  
 DS332 AN303 LV328 KI331 HL324 FE328 DS326 AN304 VB337 FE321 AL335 LV318 HL325 FE323 DS328  
 AN297 AL334 GI326 FE317 DS325 AN296 AL334 LV319 FE327 AN297 HL334 FE320 AN293 LV334 HL327  
 LV321 HL326 FE316 DS327 AN294 GI018 FE316 LV323 HL325 FE319 DS326 GI287 LV321 AN295 HL329  
 AL337 HL326 AN293 LV324 HL327 FE316 AN294 LV327 AN294 LV322 HL333 FE316 AN294 LV322 HL334  
 FE317 AN292 LV318 AN292 LV317 AN293 AL333 LV318 KI327 HL328 FE329 AN301 LV318 HL327 GI320  
 DS329 AN296 HL326 LV321 FE320 FE319 AN293 LV317 DS325 LV318 HL327 FE319 GI310 DS320 AN292  
 LV317 AN291 LV320 FE320 AN294 HL326 AN300 LV323 KI328 HL327 DS320 AN298 LV324 FE318 AN293  
 HL326 AN289 LV323 LV321 HL334 GI333 AN288 LV322 HL326 AN292 GI027 LV321 GI010 FE318 AN288  
 LV319 FE316 HL326 DS325 AN286 AN294 HL326 GI023 AN295 KI330 DS327 HL326 FE320 LV325 HL331  
 VB335 LV319 DS344 FE320 HL335 LV318 AN294 HL334 DS329 AN294 FE316 LV327 FE320 AN295 LV326  
 AN294 HL335 FE319 FE319 DS327 LV327 AN296 LV326 HL333 FE319 AN294 FE320 LV321 AN295 DS329  
 AL332 LV324 DS324 AN298 GI330 KI323 PS337 LV329 KI332 GI323 FE326 DS328 AN303 AL333 LV327  
 GI331 FE324 DS327 AN296 LV327 KI332 FE324 DS327 AN297 LV326 GI329 FE324 AN296 FE323 AN295  
 KI330 VB334 KI327 FE323 DS326 AN295 AL335 AN295 VB340 PS342 LV317 FE319 DS326 AN301 AL335  
 VB338 LV322 FE324 DS328 AL335 LV323 KI330 HL330 gi152 FE324 DS329 AN295 FE324 AN295 LV317  
 HL329 FE322 DS327 AN290 HL329 gi151 FE324 DS327 AN290 FE323 DS338 AN295 VB338 LV324 KI329  
 HL317 FE324 DS327 AN294 AL335 DS328 LV325 AN331 HL328 FE320 LV323 HL334 AN294

37=GF

58.97N 7.69E 42 9 82deg 36 71 of 118 bearings  
 1025.00 1026.00 1027.00 1028.00 1029.00 1030.00 1031.00 1032.00 1033.00 1034.00  
 1035.00 1036.00 1037.00 1038.00 1039.00 1040.00 1041.00 1042.00 1043.00 1044.00  
 1045.00 1046.00 1047.00 1048.00 1049.00 1050.00 1051.00 1052.00 1053.00 1054.00  
 1055.00 1056.00 1057.00 1058.00 1059.00 1060.00  
 LV032 BE021 DS010 bd055 bk056 N0075 HL342 FE359 DS009 BE027 n2100 N0080 LR052 fe359 AN005  
 an336 PS042 FE359 GI012 n0000 an334 n0000 BE050 DS008 CA049 FE007 AN340 LV001 BK000 an335  
 bd075 an338 GI008 FE008 BK000 RO000 bd056 SS058 SS058 BK000 bd065 kr060 mu060 it065 ko055  
 ro070 BK000 ro300 n3115 N0090 DS007 ro040 h1241 AN345 ro030 n3113 n2100 HL344 DS010 an335  
 DS008 GI019 AN344 LV005 FE003 DS011 FE002 VB020 GI007 n1090 ro030 ko058 it065 b1064 RO000  
 n3112 ro045 n2110 BE029 N0088 BK000 SS041 PS012 KI033 LR020 it064 ko058 mu060 b1059 SS041  
 DS006 RO000 n2110 N0085 FE358 DS007 an330 RO000 n2115 LR021 GI015 an331 AL019 RO000 N0073

n1088 PS021 FE003 VB019 PS021 HL342 N0070 n2165 n2150 N0090 bd060 bd055 BK000

38=GL 57 06N 32.80E 210 117 101deg 4 7 of 10 bearings  
1061.00 1062.00 1063.00 1064.00  
n2160 N0087 LR018 AN356 lv225 FE022 DS014 an294 N2140 KR059

39=GS 51 47N 137.19E 857 124 49deg 22 70 of 70 bearings  
1066.00 1067.00 1068.00 1069.00 1070.00 1071.00 1072.00 1073.00 1074.00 1075.00  
1076.00 1077.00 1078.00 1079.00 1080.00 1081.00 1082.00 1083.00 1084.00 1085.00  
1086.00 1087.00  
HL315 AN288 LV323 HL320 FE318 DS324 AN289 FE322 AN294 LV320 GI329 FE313 LV322 KI319 FE316  
DS321 AN289 AN286 LV316 AN292 LV316 HL317 AN291 LV315 AN290 DS325 AN288 HL313 FE314 LV314  
KI325 DS322 FE316 AN291 FE316 LV320 HL311 KI325 DS325 HL323 FE333 AN287 AN288 KI327 DS326  
AN288 HL317 LV319 DS326 AN288 FE324 KI326 DS324 AN289 LV321 KI327 GI003 FE318 DS327 AN291  
AN288 SS044 DS319 FE315 AN289 LV318 AN289 FE321 DS327 AN290

40=GU 46 87N 37.50E 398 63 117deg 4 7 of 12 bearings  
1088.00 1089.00 1090.00 1091.00  
N0108 BD093 ro030 N2145 n1120 BK090 BD088 N0105 BK090 n3210 n2200 n0190

41=GV 51.67N 7.27E 9 4 9deg 43 88 of 132 bearings  
1092.00 1093.00 1094.00 1095.00 1096.00 1097.00 1098.00 1099.00 1100.00 1101.00  
1102.00 1103.00 1104.00 1105.00 1106.00 1107.00 1108.00 1109.00 1110.00 1111.00  
1112.00 1113.00 1114.00 1115.00 1116.00 1117.00 1118.00 1119.00 1120.00 1121.00  
1122.00 1123.00 1124.00 1125.00 1126.00 1127.00 1128.00 1129.00 1130.00 1131.00  
1132.00 1133.00 1134.00  
PS020 BE047 SS033 VB036 AN353 VB032 AL034 SS035 b1085 BD075 n0000 n2152 LR045 BE045 AL035  
BD075 n2139 n0000 BD075 b1080 KR075 ko058 it082 n2125 n3160 n0085 n1127 n3125 n0090 n0090  
VB035 LR036 BE042 VB035 SS036 BD070 AN003 BD070 BK000 FE019 VB040 n2136 n0085 BK000 GI025  
AN005 MU050 KR070 BK000 KR070 ko055 mu075 BK000 BK000 mu065 BK000 GI024 AL035 n2130 n0090  
BK000 ro040 BD071 FE016 LV020 DS024 BE044 PS038 CA040 BE044 AL032 b1065 it065 SS026 PS036  
VB035 LR040 AL038 LR037 AL033 VB035 AL034 LR038 VB036 SS048 n0110 BD075 RO000 mu060 ko060  
VB037 LR038 SS040 LR038 PS035 BE043 SS040 DS027 AL033 PS034 LR036 AL035 FE021 SS040 BK000  
ko053 it088 ko054 it089 VB034 PS037 AL038 n1140 n0102 n2153 n0088 BK000 BD072 it090 b1085  
BK000 ko053 KR085 bk075 BK000 VB037 bk079 n0000 n2116 n1091 BK000 AL035

42=GW 58 84N 6.72E 63 15 87deg 5 9 of 12 bearings  
1135.00 1136.00 1137.00 1138.00 1139.00  
VB035 AN337 BK000 PS038 LR039 N0073 n3155 n2142 ro060 BK000 N0100 BK000

43=HD 60.83N 157.76E 388 41 67deg 43 104 of 107 bearings  
1141.00 1142.00 1143.00 1144.00 1145.00 1146.00 1147.00 1148.00 1149.00 1150.00  
1151.00 1152.00 1153.00 1154.00 1155.00 1156.00 1157.00 1158.00 1159.00 1160.00  
1161.00 1162.00 1163.00 1164.00 1165.00 1166.00 1167.00 1168.00 1169.00 1170.00  
1171.00 1172.00 1173.00 1174.00 1175.00 1176.00 1177.00 1178.00 1179.00 1180.00  
1181.00 1182.00 1183.00  
LV321 FE316 LV337 AN293 FE316 AN296 FE318 AN292 FE316 AN292 LV333 an332 GI321 AN290 GI018  
LV331 AN294 AN294 GI023 LV307 AN294 DS327 AN290 LV321 FE316 DS326 HL333 AN293 HL330 GI010  
HL330 AN292 FE321 AN294 LV322 AN293 FE320 HL320 AN295 LV321 GI021 FE319 AN293 LV320 DS326  
h1153 FE321 LV321 FE315 DS327 AN285 GI014 AN292 AN291 LV325 AN291 FE318 GI032 FE318 AN291  
FE322 AN291 HL327 AN292 AN292 HL328 AN289 LV325 FE319 AN294 LV325 FE318 AN289 LV320 FE318  
HL331 AN293 GI330 LV322 HL329 AN292 gi147 GI315 AN290 FE317 DS324 FE318 AN294 HL330 GI335  
AN293 LV321 DS328 HL331 AN293 HL328 AN284 DS329 LV321 FE319 AN291 DS336 AN294 FE319 LV319  
DS329 AN289

44=HM 61 16N 150.00W 829 4 172deg 4 9 of 11 bearings  
1184.00 1185.00 1186.00 1187.00  
LV346 HL334 LV322 h1311 AN345 LV312 h1330 AN004 BK000 AN327 AN327

45=HL 56 50N 37.34E 28 16 109deg 52 157 of 179 bearings

1211.00 1212.00 1213.00 1214.00 1215.00 1216.00 1217.00 1218.00 1219.00 1220.00  
 1221.00 1222.00 1223.00 1224.00 1225.00 1226.00 1227.00 1228.00 1229.00 1230.00  
 1231.00 1232.00 1233.00 1234.00 1235.00 1236.00 1237.00 1238.00 1239.00 1240.00  
 1241.00 1242.00 1243.00 1244.00 1245.00 1246.00 1247.00 1248.00 1249.00 1250.00  
 1251.00 1252.00 1253.00 1254.00 1255.00 1256.00 1257.00 1258.00 1259.00 1260.00  
 1261.00 1262.00  
 IT071 BL060 N3155 N0082 VB034 SS035 bk045 BD064 IT071 BL062 KO053 BD062 bk000 MU046 KR065  
 IT070 BL065 KO055 N0082 N2132 N1120 MU060 IT070 KO055 IT070 KO057 BD060 bk000 MU050 IT070  
 BL060 KO053 BD063 N0083 n3185 bk000 N0090 RD064 bk000 AN334 GI039 ro000 SS039 KI020 AL030  
 N3150 N2127 n0000 IT068 BL075 N0080 N1118 N1115 N3150 N2132 N1120 N3155 N0082 N2140 RO030  
 BD065 N1125 N2130 N0090 BD060 bk000 N3146 N1117 N2133 RD060 N2130 N0080 N0085 bk000 N2140  
 N0088 BD057 MU070 KO060 BD063 N0085 N2140 KR058 IT072 BL065 bk000 SS041 AN002 ro000 BD064  
 BK060 N0082 BD060 AL034 BD060 bk000 VB027 BE039 AL019 VB040 bk000 MU056 KO052 KR070 bk000  
 N2115 N0085 SS036 PS034 GI038 RD058 BE045 VB040 SS036 SS037 LR037 GI018 N2135 N0082 N3148  
 BD060 N2135 N0085 BD068 n2153 N2125 N3150 RD065 N0085 N3170 N0085 RD061 N1105 N2130 bk000  
 n3175 bk000 N1135 N0080 BD063 N2132 N1120 N0080 BD068 bk000 N2132 N1117 BD062 N0080 N1117  
 N2135 N0080 BD062 SS040 LV317 HL314 BE040 N1130 N0085 RO040 MU080 VB037 KI032 DS032 AN355  
 BD064 bk000 MU050 KR074 BL065 IT071 bk000 DS015 BE035 KI015 AN354 FE008 LR032 LV020

46=IR 56 34N 45 01E 484 126 126deg 4 7 of 8 bearings

1263.00 1264.00 1265.00 1266.00  
 N1105 N0082 KI015 DS013 VB034 AN354 N0080 bk000

47=JA 54.50N 18.86E 0 0 0deg 1 2 of 2 bearings

1267.00  
 IT080 KO038

48=K7 48.25N 16 29E 76 22 123deg 24 98 of 114 bearings

1268.00 1269.00 1270.00 1271.00 1272.00 1273.00 1274.00 1275.00 1276.00 1277.00  
 1278.00 1279.00 1280.00 1281.00 1282.00 1283.00 1284.00 1285.00 1286.00 1287.00  
 1288.00 1289.00 1290.00 1291.00  
 bk000 N0140 N0137 N0137 mu120 ko104 bl140 BK112 VB041 SS046 LR050 KI039 BE053 BK112 N2165  
 n0125 bk000 BD110 VB044 SS049 KI051 BE051 LR057 VB045 SS045 bk000 BK110 BD105 BK110 VB043  
 PS038 LV033 FE022 DS028 CA049 BE053 AN006 LV052 gi140 AN337 FE024 KI038 LR053 AL045 PS046  
 FE006 VB045 LV005 KI038 AN004 PS042 AN003 SS048 GI324 FE029 AN003 AN003 FE028 KI041 bk000  
 FE022 CA046 BE052 AN358 N1158 AL045 FE021 DS034 AN003 LV022 BD110 BK119 PS041 BE051 LR052  
 PS040 LR048 BE052 SS054 LR051 ba000 BK106 BK106 LR054 BE055 LR048 KI040 LR048 KI040 N1158  
 N0138 n0105 BD114 bk000 RO000 n2150 n1120 n0080 BK120 VB044 BE054 PS045 LR052 CA052 PS045  
 BE048 RO000 n1140 GI036 LR049 SS041 KI044 AL040 VB046

49=KF 18.30S 79.89E 1163 263 26deg 7 22 of 24 bearings

1309.00 1310.00 1311.00 1312.00 1313.00 1314.00 1315.00  
 N2140 N0090 FE320 AN298 LV327 DS330 FE320 AN296 LV328 h1349 gi152 FE321 DS329 AN288 GI023  
 FE320 DS325 LV317 KI323 FE320 DS329 AN296 FE321 AN298

50=KL 47.44N 33.04E 254 49 112deg 1 3 of 3 bearings

1316.00  
 IT104 KO082 BL104

51=KM 38.02N 67.93E 853 436 166deg 8 24 of 25 bearings

1317.00 1318.00 1319.00 1320.00 1321.00 1322.00 1323.00 1324.00  
 DS356 AN333 KI325 VB040 LV352 FE346 DS356 AN330 ro000 DS357 N2120 N0090 N1105 AN331 VB014  
 AL013 HL332 HL331 GI347 HL327 AN332 LV314 AN331 HL331 AN328

52=KR 50.39N 148.87E 14822 1128 59deg 1 3 of 3 bearings

1325.00  
 DS318 FE308 LV314

53=KU 20.17N 107.55E 1098 375 31deg 17 54 of 55 bearings

1326.00 1327.00 1328.00 1329.00 1330.00 1331.00 1332.00 1333.00 1334.00 1335.00

1336.00 1337.00 1338.00 1339.00 1340.00 1341.00 1342.00  
 KR075 BL086 MU075 KO063 K1327 FE314 DS326 FE307 HL315 FE307 DS322 AN288 LV321 LV321 FE311  
 AN288 FE314 DS327 AN286 LV314 FE307 DS326 LV318 FE307 DS324 LV313 DS325 FE307 LV321 FE307  
 DS322 DS338 K1322 HL315 FE306 AN287 LV326 K1324 FE311 HL315 DS324 AN286 gi149 DS321 LV314  
 K1329 FE316 DS322 AN288 FE310 AN286 FE311 DS320 FE310 AN288

54=KV

51.11N 7.27E 21 1 8deg 129 355 of 570 bearings  
 1343.00 1344.00 1345.00 1346.00 1347.00 1348.00 1349.00 1350.00 1351.00 1352.00  
 1353.00 1354.00 1355.00 1356.00 1357.00 1358.00 1359.00 1360.00 1361.00 1362.00  
 1363.00 1364.00 1365.00 1366.00 1367.00 1368.00 1369.00 1370.00 1371.00 1372.00  
 1373.00 1374.00 1375.00 1376.00 1377.00 1378.00 1379.00 1380.00 1381.00 1382.00  
 1383.00 1384.00 1385.00 1386.00 1387.00 1388.00 1389.00 1390.00 1391.00 1392.00  
 1393.00 1394.00 1395.00 1396.00 1397.00 1398.00 1399.00 1400.00 1401.00 1402.00  
 1403.00 1404.00 1405.00 1406.00 1407.00 1408.00 1409.00 1410.00 1411.00 1412.00  
 1413.00 1414.00 1415.00 1416.00 1417.00 1418.00 1419.00 1420.00 1421.00 1422.00  
 1423.00 1424.00 1425.00 1426.00 1427.00 1428.00 1429.00 1430.00 1431.00 1432.00  
 1433.00 1434.00 1435.00 1436.00 1437.00 1438.00 1439.00 1440.00 1441.00 1442.00  
 1443.00 1444.00 1445.00 1446.00 1447.00 1448.00 1449.00 1450.00 1451.00 1452.00  
 1453.00 1454.00 1455.00 1456.00 1457.00 1458.00 1459.00 1460.00 1461.00 1462.00  
 1463.00 1464.00 1465.00 1466.00 1467.00 1468.00 1469.00 1470.00 1471.00  
 SS043 LR027 AN331 AL023 VB028 SS035 LR040 GI032 AL026 ro050 bd073 BK000 SS035 LR042 CA040  
 BE047 AL020 a1017 GI015 SS035 PS028 BE031 LR027 VB042 SS033 PS057 AL041 FE007 AL041 PS034  
 LV350 AN343 BK000 AN332 fe311 SS034 VB039 LR040 AN337 kr078 mu080 kr075 ko080 it080 bl092  
 n0083 bd073 BK000 SS035 an333 GI344 ro250 BK000 bd075 KR078 it080 bl085 ko080 BK000 ro000  
 n0083 BK000 n2100 n0078 BD073 BK077 HL325 bl085 it084 kr076 ro065 BD073 BK000 n0087 BK000  
 BD075 n2110 LV334 HL332 bd077 BK075 mu081 it095 BK000 bd077 ko063 it085 bl080 BK000 HL329  
 HL325 BK000 bd076 kr080 bl081 it085 ko075 BK000 BK000 SS045 bd074 BK073 n1098 ko072 kr080  
 bl080 it085 n2115 n0090 ko073 bl079 it086 ro030 n0087 BK000 RO000 bd072 BK000 bl081 it085  
 kr081 ko075 PS037 SS036 CA053 BK071 AL036 LR039 PS032 BE038 VB032 PS038 LR042 BE040 AL038  
 BK000 SS035 PS040 LR040 bd066 BK066 BK073 PS026 HL330 LV005 CA035 LR032 FE007 ki324 DS008  
 AL025 BE039 AN329 SS037 n0083 bd070 BK000 VB035 PS026 BE043 AL037 BK000 HL331 FE358 an322  
 BK070 bd067 BK070 n0088 n2140 HL326 n1100 n0085 BD075 BK000 it080 kr074 bd074 BK000 BK000  
 it085 kr070 bl085 ko068 kr071 bl080 kr077 it080 bl085 SS031 AL038 KI040 SS036 BK000 n0000  
 kr075 ko070 it070 bl085 BD073 n0083 bd072 BK000 SS037 BD075 BE041 LR059 SS032 AL045 n0085  
 n2125 BD075 ro030 n0088 bd073 BK000 n1103 LV325 DS332 OS344 lv316 an285 BK000 LV096 SS035  
 DS328 HL305 LV323 LV325 GI025 HL310 kr060 ko080 HL317 RO000 BK000 bd073 BK074 LV351 DS349  
 BK000 DS336 lv308 GI038 SS036 LV324 HL321 DS345 LV328 HL312 DS340 n0084 n3165 bd070 BK074  
 DS351 VB040 SS040 PS035 GI027 RO000 BK000 VB034 SS035 PS040 LR040 AL036 PS038 VB035 VB035  
 PS041 LR038 AL039 PS040 SS035 AL030 LR049 VB040 AN330 SS035 SS032 it085 kr080 ko073 bl080  
 ro030 LR026 BE041 SS043 AL040 RO000 bd073 BK000 bd075 ko065 bl075 it087 SS035 PS040 SS033  
 LV331 n0085 BD076 BK000 kr080 bl080 it085 ko073 SS034 BK000 n0085 BK000 SS040 BK000 BK075  
 PS013 AL020 BK074 bd076 n0085 n1099 BK000 RO000 bd077 BK000 AL038 SS041 VB028 BK000 VB024  
 BE032 SS038 n0090 BD075 bl088 BK000 n3115 n1095 bd072 BK000 BK000 n0085 bd074 AN341 BE035  
 GI021 AL021 VB030 SS035 LV328 SS040 LR027 AL030 an339 PS042 LR025 VB035 SS035 AL020 BK074  
 n0100 BK000 SS031 AL013 n3116 n1100 SS034 LR018 GI060 AL030 gi318 ds327 n1135 n0100 BD070  
 n3140 n0090 BD075 BK000 BK000 bd078 AL022 PS040 CA029 be030 SS035 KI019 AL037 DS015 GI008  
 BK000 bd075 n0098 n0110 kr080 bl090 it090 n0116 n0082 bd074 n1101 bl070 it075 ko075 SS034  
 PS041 GI020 VB046 DS034 n0082 SS036 VB027 AL039 BK000 BE042 VB347 SS037 bd074 n0080 mu080  
 BK000 K1323 DS356 n0089 n1114 BK090 n2139 n0089 bd075 n2115 BK000 SS036 LR037 AN330 VB040  
 SS036 BE031 BK000 VB013 SS036 PS000 GI017 a1358 BK000 VB024 SS036 PS016 LR018 RK000 BK000  
 SS034 GI011 en097 bd075 n0083 bd075 BK000 it081 VB026 SS037 LR025 KI015 GI033 BE032 n2135  
 n0083 n3155 bd075 RK000 n3115 n0100 VB025 SS034 LR024 BE033 BK000 BD075 BK000 N0195 SS037  
 n1100 n0085 bd075 n2140 n0100 bd077 bl085 it075 BK000 ko068 DS007 SS034 BE035 n0078 BK000  
 SS044 SS038 KI021 BE043 BK000 BE032 VB035 n2109 bd075 BK000 n3119 n0000 it085 bl090 ko072  
 VB024 PS021 CA027 be030 lv317 LR021 KI342 CA034 be030 AN330 RO000 n3118 n0088 bd072 BK000  
 SS032 DS001 AN332 AL019 n0088 RK000 BK000 DS010 LV033 ro060 bd074 RK000 n0085 AL040 BE032  
 SS036 BK000 BK000 SS037 bd071 BK000 mu073 n0082 AL040 bl095 kr075 VB038 SS042 BE035 RO000  
 n0085 bd075 kr080 it095 bl085 ko073 BK075 BE046 SS038 VB020 SS041 BK000 SS039 gi006 KI031

55=L4

49.19N 14.54E 63 19 117deg 26 192 of 212 bearings

1472.00 1473.00 1474.00 1475.00 1476.00 1477.00 1478.00 1479.00 1480.00 1481.00  
 1482.00 1483.00 1484.00 1485.00 1486.00 1487.00 1488.00 1489.00 1490.00 1491.00  
 1492.00 1493.00 1494.00 1495.00 1496.00 1497.00  
 BD104 bk000 N0140 N2165 n0125 SS051 SS054 PS042 GI030 RE053 PS044 VB047 FE023 AN002 VB044  
 SS047 LV025 LR050 KI038 GI036 FE021 DS031 BE052 AN003 AL049 VB043 SS044 PS044 LV029 LR049  
 KI040 FE021 DS028 BE053 AN002 AL048 BK114 PS014 LR011 KI039 GI030 BE024 BD105 N0210 n3296  
 n2218 BD090 BK112 N0130 SS043 AL048 LR049 KI039 GI035 PS045 FE027 BS032 LV027 VB044 BE052  
 AN002 AL048 VB044 SS043 KI039 GI038 BE052 KR120 ko105 bl126 it134 VB043 LR048 SS043 FE027  
 DS032 LV028 BE051 AL048 VB048 LR046 LV031 KI038 FE032 GI041 PS042 BE054 DS029 AN004 LR048  
 VB044 KI038 BE052 AL048 BK114 bk000 LV024 DS032 GI037 BE052 LR048 AN002 VB043 AL048 SS046  
 PS044 LV023 KI036 LR048 GI037 BE053 AL044 AL043 BE053 FE037 SS043 BS033 LR049 GI037 PS042  
 bk000 SS043 VB045 LR047 GI037 DS033 BE050 AL036 PS038 FE024 bk000 SS054 PS044 GI038 FE024  
 DS036 CA049 BE052 AL043 SS054 PS043 GI038 bk000 PS043 LR050 FE025 LV027 DS032 AN003 CA049  
 BE053 BK105 SS054 PS045 LR030 BE051 KR120 it140 n3110 n2100 n0073 KO058 bl130 it135 SS056  
 VB046 LR050 DS031 PS043 CA051 AL045 BE053 N0132 BD105 SS054 PS044 LV026 LR050 KI038 DS031  
 CA050 BE053 SS054 PS044 KI038 CA050 BE053 LR049 KI039 CA050 BE052 AL044 N2168 n1158 N0131  
 BD105 BK119 CA050 BE052 SS050 PS044 LR050 KI039 GI039 BS031 BK106 KR110 IT130 AN001 SS050  
 n1125 n0085

56=I.F

51 13N 7.28E 7 1 11deg 75 141 of 239 bearings  
 1510.00 1511.00 1512.00 1513.00 1514.00 1515.00 1516.00 1517.00 1518.00 1519.00  
 1520.00 1521.00 1522.00 1523.00 1524.00 1525.00 1526.00 1527.00 1528.00 1529.00  
 1530.00 1531.00 1532.00 1533.00 1534.00 1535.00 1536.00 1537.00 1538.00 1539.00  
 1540.00 1541.00 1542.00 1543.00 1544.00 1545.00 1546.00 1547.00 1548.00 1549.00  
 1550.00 1551.00 1552.00 1553.00 1554.00 1555.00 1556.00 1557.00 1558.00 1559.00  
 1560.00 1561.00 1562.00 1563.00 1564.00 1565.00 1566.00 1567.00 1568.00 1569.00  
 1570.00 1571.00 1572.00 1573.00 1574.00 1575.00 1576.00 1577.00 1578.00 1579.00  
 1580.00 1581.00 1582.00 1583.00 1584.00  
 mu080 kr072 ko060 CA039 AL038 BE040 GI030 AL036 ko075 bl109 it114 ko080 mu085 mu043 ko090  
 bk000 RO000 mu035 it090 ro000 bk000 ro035 mu080 ro020 ko081 RO000 BK000 ro050 BK000 BK000  
 ro030 ko084 KR068 bl120 ro030 n0115 BK054 RO000 BK000 RO000 ko082 mu078 BK000 ro000 ko080  
 RO000 BD095 mu080 ko055 ro040 BK000 ro030 BK000 BK000 RO000 ro030 it075 ko052 RO000 BK000  
 KR097 ko080 ko075 KR092 bl118 kr098 ko078 mu085 mu040 ko055 it085 RO000 BK000 RO000 BK000  
 ro040 BK000 ko060 AN359 BE050 SS042 KI037 LR044 LR038 CA042 BE043 BE048 AN357 n0116 BD087  
 PS035 LR039 GI027 VB032 BK090 it109 mu050 ko078 BK076 kr070 BK076 LV027 FE021 BS034 BE043  
 AL041 VB045 LR045 AL040 BK093 KR095 VB043 LR044 ro010 BK000 ko056 ko085 KR096 VB041 LR048  
 BE050 CA049 ro280 BK000 PS037 LR043 BE046 LR027 GI024 BE048 mu075 KR080 it078 bl085 ko070  
 VB040 BE051 SS045 VB043 BK000 BK000 ro050 ko084 AL038 SS040 PS039 LR045 RO000 BK058 ro030  
 KR080 it095 it095 bl070 ko075 ro070 n0085 RO000 ko075 it080 en100 BD091 SS038 VB042 LR044  
 VB039 PS041 GI032 n0120 BD091 BK000 RO000 BD090 n3160 n0082 LV013 AN001 n2150 n1145 n0105  
 n0090 mu086 ko084 SS002 n0119 BD091 BK000 bl115 KR095 BK000 VB040 BE050 ro030 BD091 BK000  
 ro070 BD078 BK000 bl110 BK000 RO000 bd072 BK088 mu095 ko081 it113 bl100 kr091 LR023 CA049  
 SS045 PS041 BE049 LR046 SS041 VB043 BK000 GI031 CA045 AL040 BE044 KI033 LR040 SS042 VB038  
 n1115 mu089 RO000 n0110 BD091 ko074 bl110 it114 VB034 BE045 AL038 BK000 VB039 AL039

57=I.K

51 76N 7.30E 5 3 19deg 117 253 of 445 bearings  
 1585.00 1586.00 1587.00 1588.00 1589.00 1590.00 1591.00 1592.00 1593.00 1594.00  
 1595.00 1596.00 1597.00 1598.00 1599.00 1600.00 1601.00 1602.00 1603.00 1604.00  
 1605.00 1606.00 1607.00 1608.00 1609.00 1610.00 1611.00 1612.00 1613.00 1614.00  
 1615.00 1616.00 1617.00 1618.00 1619.00 1620.00 1621.00 1622.00 1623.00 1624.00  
 1625.00 1626.00 1627.00 1628.00 1629.00 1630.00 1631.00 1632.00 1633.00 1634.00  
 1635.00 1636.00 1637.00 1638.00 1639.00 1640.00 1641.00 1642.00 1643.00 1644.00  
 1645.00 1646.00 1647.00 1648.00 1649.00 1650.00 1651.00 1652.00 1653.00 1654.00  
 1655.00 1656.00 1657.00 1658.00 1659.00 1660.00 1661.00 1662.00 1663.00 1664.00  
 1665.00 1666.00 1667.00 1668.00 1669.00 1670.00 1671.00 1672.00 1673.00 1674.00  
 1675.00 1676.00 1677.00 1678.00 1679.00 1680.00 1681.00 1682.00 1683.00 1684.00  
 1685.00 1686.00 1687.00 1688.00 1689.00 1690.00 1691.00 1692.00 1693.00 1694.00  
 1695.00 1696.00 1697.00 1698.00 1699.00 1700.00 1701.00  
 LR045 VB037 ro250 BE045 BK000 ro030 KR067 it074 bl065 ko050 SS042 BE043 ro030 BD067 BK000  
 bl069 bl067 KR067 ko040 ko040 mu025 SS045 LR020 RO000 n3185 it067 bl060 mu040 KR058 ko047

it075 RO000 bk056 mu045 kr065 ko048 bl080 ko040 bl062 it076 KR065 HD067 BK000 SS043 BE037  
 AL035 RO000 BD070 bk053 SS037 GI022 mu045 KR065 bl060 ko048 bl096 ko070 KR064 it078 n0110  
 BE043 bd027 VB036 n0070 n2165 BD067 BK000 ro030 BD068 BK000 RO000 BD067 BK000 n0088 n1150  
 bd065 BK000 BE041 LR041 n1130 BD065 BK000 SS045 BE043 ko042 KR065 it069 bl085 n1150 n0090  
 bd065 BK000 LR051 SS040 ko042 bl061 mu027 bk045 bd066 bk050 BK000 it075 kr065 ko036 bd063  
 BK000 n0082 bd066 BK000 it074 KR062 ko042 bl060 VB033 SS040 LR042 VB033 LR042 bd065 ro100  
 n2160 n1125 n0095 BK000 ko045 KR066 it076 bl060 n1145 n3170 n0090 BD068 KR065 it075 ko043  
 BE043 SS035 VB037 ro030 n0105 BD064 bk057 ko043 KR064 it076 bl060 BE050 LR045 BK000 bl070  
 ko050 it070 bl065 bd065 BK000 bd066 bk057 ro030 BE041 SS039 LR025 BD067 BK000 n0102 LR030  
 VR037 SS040 n0100 ko050 bl060 n0087 n1121 n0000 BD075 n2158 n1149 n0103 SS039 VB035 BE052  
 PS032 LR039 LR039 RE042 SS040 VB036 bk066 VB033 SS040 LR042 BE042 n1125 n0095 GI043 BE041  
 AL031 bd067 BK000 n1131 n0091 LR039 BE042 ki331 n0103 BK000 LR042 AN357 LR040 BE048 AN353  
 SS044 PS037 LR041 RE047 VB035 LR039 BE044 n0100 BK000 en093 VB034 SS039 LR041 BE042 SS039  
 BK000 SS040 LR046 VB034 LR017 BE052 SS039 VB035 SS040 VB035 LR040 ro040 n2150 n0110 VR036  
 BE042 n3160 n2145 N0150 BE041 AL033 n3160 n2125 n0085 n1127 BK000 BD070 bd064 BK000 VB034  
 FE021 BE038 AN335 LV023 LV030 FE021 GI318 AN003 VB039 PS035 AN359 VB036 AL037 BK000 n1152  
 bd066 ko075 n0120 n1135 bk062 n3135 n0082 BK000 bd062 SS039 mu043 KR065 ko045 n2125 n0080  
 BD068 it074 bl065 ko046 BD060 CA039 PS022 AL034 BE043 bl065 n2145 n0085 n1130 BK000 bd065  
 BK000 AN358 PS035 LV013 FE021 FE021 AN003 LV012 BK000 BD066 BD067 BK000 an294 SS037 LR041  
 BE043 bk040 n0090 bd064 n0140 BD068 bk062 n1145 BD067 VB032 PS038 LR042 CA040 BE042 VB037  
 BE045 VB035 LR039 BE043 VB038 LR039 RO000 BD070 KR070 it085 it080 ko070 n0099 n2139 n1110  
 GI034 DS030 AL032 KI032 AN353 BK000 n3155 n2145 n0100 bd062 LR040 BE046 AN001 BE044 VB037  
 BK000 n2130 n1135 n0090 LR040 BE044 N3210 N2200 n0190 VB034 AL037 n1150 n0095 it078 KR060  
 ko045 bd069 KR060 RO000 n0090 n1135 PS035 BE041 n2168 n3188 n1153 SS039 PS039 AN355 VB035  
 PS038 AL036 RO000 BD075 BK000 KR070 mu040 ko040 VB045 SS037 ro030 n2170 n0107 VB035 BE044  
 n3175 n0095 VB042 SS044 BE046 KR065 ko052 it070 bl085 AN358 VB034 LR025 n2140 n0100 VB035  
 SS039 LR015 GI029 n2145 n0104 VB032 SS036 KI033 GI020 CA037 BE042 bk068 bd068 bk068 SS038  
 RO000 BD067 BK000 RO000 BK000 mu047 KR070 it078 bl060 ko045

58=LR

59.00N 31.96E 33 21 92deg 42 102 of 144 bearings  
 1712.00 1713.00 1714.00 1715.00 1716.00 1717.00 1718.00 1719.00 1720.00 1721.00  
 1722.00 1723.00 1724.00 1725.00 1726.00 1727.00 1728.00 1729.00 1730.00 1731.00  
 1732.00 1733.00 1734.00 1735.00 1736.00 1737.00 1738.00 1739.00 1740.00 1741.00  
 1742.00 1743.00 1744.00 1745.00 1746.00 1747.00 1748.00 1749.00 1750.00 1751.00  
 1752.00 1753.00  
 N2130 n3180 N2140 N3160 SS032 VB032 AL028 KI023 RO030 HD058 bk000 N3158 N0076 N1117 N0076  
 n2141 N1116 N1117 N2143 bk000 N2140 BL070 N3150 N2135 N1116 n2115 BD054 N1110 bk000 ro110  
 ro000 n1105 bk000 ro000 n3150 n1090 bk000 RO040 MU045 KO038 N1130 N0075 bk000 KO040 ro000  
 MU050 KR055 KO038 IT062 ro240 it077 MU040 ko060 KR070 bk000 N0075 ro320 bk000 ro070 KO038  
 BL040 MU048 kr070 KO060 RO020 bk000 KR060 BL065 ko040 bk000 MU045 KO044 KO035 IT065 bk000  
 bk000 ro000 KO035 IT060 MU040 KR068 KO050 RL050 ro000 RL045 KO055 it080 BL060 ko035 KR060  
 MU045 bk000 GI032 AN357 CA318 LR335 SS034 VB032 BE307 N2150 N1120 N0080 BD053 VR030 SS033  
 bk000 RK047 BD052 SS034 bk000 N0070 BD053 bk000 n1140 ro000 KR062 IT057 SS030 GI023 SS031  
 GI020 bk057 KR057 KO045 n3000 N1121 N2140 N1121 N0078 BD052 BL060 IT055 N1121 N0078 N2141  
 BD050 N0085 bk000 N0078 N1114 SS042 PS024 LR030 KI025

59=LV

47.03N 138.34E 548 161 51deg 25 80 of 80 bearings  
 1754.00 1755.00 1756.00 1757.00 1758.00 1759.00 1760.00 1761.00 1762.00 1763.00  
 1764.00 1765.00 1766.00 1767.00 1768.00 1769.00 1770.00 1771.00 1772.00 1773.00  
 1774.00 1775.00 1776.00 1777.00 1778.00  
 LV313 FE307 LV314 FE307 AN279 LV315 AN287 FE307 LV312 FE307 DS321 AN283 HL313 AN285 FE307  
 DS325 DS326 AN290 LV322 FE308 LV317 AN289 LV320 FE311 DS322 AN288 AN282 FE306 KI322 LV322  
 DS320 LV320 KI317 HL316 FE311 DS322 AN284 FE312 AN285 FE306 AN279 HL311 GI356 AN283 HL310  
 DS328 AN284 LV318 DS318 FE307 HL311 KI321 LV327 HL312 AN284 AN282 LV317 HL310 LV319 AN277  
 FE307 LV318 HL310 FE306 AN289 FE307 AN291 HL322 LV312 HL312 LV318 AN283 HL311 AN287 LV315  
 HL315 AN283 LV316 HL311 AN290

60=LV

42.94N 75.81E 6213 336 127deg 1 3 of 3 bearings  
 1779.00  
 KR075 KO070 IT076

61=M3 58.27N 16.54E 114 76 112deg 5 13 of 15 bearings  
 1780.00 1781.00 1782.00 1783.00 1784.00  
 N1165 N0090 N2170 AL035 AN004 bd097 SS042 VB043 LR047 R0000 N0090 bd092 KI025 GI021 BE051

62=M7 44.07N 23.72E 1017 448 142deg 5 15 of 15 bearings  
 1785.00 1786.00 1787.00 1788.00 1789.00  
 VB043 RE055 KI038 DS032 AN002 VB047 PS336 FE027 AN004 RE053 PS046 KI048 SS049 GI039 AN004

63=MA 65.86N 7.30E 1415 96 0deg 2 6 of 7 bearings  
 1790.00 1791.00  
 VB037 LV017 FE012 DS022 BK000 it100 BK000

64=MB 55.54N 23.19E 125 74 98deg 7 13 of 17 bearings  
 1792.00 1793.00 1794.00 1795.00 1796.00 1797.00 1798.00  
 BE047 VB036 BD066 VB033 LR040 RE041 n2135 n0085 bk042 LT062 N0103 N1148 BD067 KR070 b1080  
 LV032 FE026

65=MG 51.10N 7.27E 35 1 10deg 125 379 of 634 bearings  
 1799.00 1800.00 1801.00 1802.00 1803.00 1804.00 1805.00 1806.00 1807.00 1808.00  
 1809.00 1810.00 1811.00 1812.00 1813.00 1814.00 1815.00 1816.00 1817.00 1818.00  
 1819.00 1820.00 1821.00 1822.00 1823.00 1824.00 1825.00 1826.00 1827.00 1828.00  
 1829.00 1830.00 1831.00 1832.00 1833.00 1834.00 1835.00 1836.00 1837.00 1838.00  
 1839.00 1840.00 1841.00 1842.00 1843.00 1844.00 1845.00 1846.00 1847.00 1848.00  
 1849.00 1850.00 1851.00 1852.00 1853.00 1854.00 1855.00 1856.00 1857.00 1858.00  
 1859.00 1860.00 1861.00 1862.00 1863.00 1864.00 1865.00 1866.00 1867.00 1868.00  
 1869.00 1870.00 1871.00 1872.00 1873.00 1874.00 1875.00 1876.00 1877.00 1878.00  
 1879.00 1880.00 1881.00 1882.00 1883.00 1884.00 1885.00 1886.00 1887.00 1888.00  
 1889.00 1890.00 1891.00 1892.00 1893.00 1894.00 1895.00 1896.00 1897.00 1898.00  
 1899.00 1900.00 1901.00 1902.00 1903.00 1904.00 1905.00 1906.00 1907.00 1908.00  
 1909.00 1910.00 1911.00 1912.00 1913.00 1914.00 1915.00 1916.00 1917.00 1918.00  
 1919.00 1920.00 1921.00 1922.00 1923.00  
 it086 ko070 mu080 b1092 ko083 kr080 b1100 it085 it085 b1093 kr075 ko065 BK068 it088 mu079  
 ko075 b1095 kr082 PS044 VB040 SS034 BE044 AL038 BK000 SS040 LR038 RE046 AL039 PS043 BK078  
 b1080 it090 kr074 ko080 BK000 KI033 AL023 GI031 LR040 SS036 PS041 ko045 b1090 kr076 ki324  
 fe317 ds323 an290 SS042 BE031 BK082 ro000 n3150 n2120 n0090 bd071 BK079 VB030 SS040 PS032  
 LV357 LR043 HL327 FE357 BE032 AN332 ki332 ds326 lv310 HL322 BK080 BK000 n0085 ro270 BK000  
 n0090 LV325 LR028 HL328 FE353 DS005 CA030 be035 AN333 AL027 VB025 SS042 lv303 FE357 ds327  
 an331 RE033 AN333 VB035 SS041 HL324 DS350 n2140 n1100 n0080 bd072 BK000 HL326 AN333 VB030  
 SS042 HL325 ds327 BE033 AN333 AL041 bd074 kr075 ko070 it083 b1098 mu080 kr080 ko089 b1090  
 BK000 LV355 HL330 fe353 AN330 VB027 PS028 LR033 KI030 GI024 SS038 LR034 CA030 RE035 VB027  
 FE347 GI049 AL047 PS040 ds327 PS043 ki321 AL046 fe348 VB040 SS038 BE030 AL028 fe354 PS029  
 VB036 AN330 VB032 BK000 VB031 SS040 PS029 LR038 be031 AL032 VB031 SS039 LR038 be031 BK000  
 SS044 LR026 be035 lv315 HL328 BK000 BK000 AN334 HL332 FE353 SS036 LR030 HL331 fe353 BE035  
 CA030 AN332 BK073 RE035 CA030 BK000 SS037 PS332 HL322 FE357 BE037 AN337 AL031 n0085 n2110  
 n3120 SS036 LV355 LR034 HL327 GI020 BE035 AN331 AL038 ro000 bd077 BK000 AN331 PS025 LR028  
 ds359 PS022 LR021 mu080 kr080 b1090 it086 BK000 bd065 bd076 BK000 n0087 SS040 lr337 AL036  
 n3140 n0088 bd074 BK000 BK000 SS037 AN330 SS040 BE043 BK000 BE044 SS040 kr075 ko070 it083  
 b1090 LR036 SS038 n2125 BK074 n0085 BK083 bd075 n2134 n1000 bd073 n0081 n1106 ko080 mu080  
 it090 b1090 ro020 bd076 BK000 VB031 SS040 be011 an333 BK000 BK081 SS033 BK000 ro040 n0090  
 bd073 BK000 VB038 SS036 SS039 LR046 BE048 AN330 SS039 LV017 BE044 an330 VB040 SS037 BE025  
 an332 n2114 n0082 AL044 VB035 SS033 PS045 LR040 CA043 RE045 bd074 BK000 bd078 SS035 bd075  
 ro000 n0085 kr077 VB035 SS040 BK000 BK048 SS035 n1120 n0085 BK000 SS035 n2135 n0087 PS040  
 SS036 AN359 LR035 BE040 kr076 LR035 PS030 GI328 LR051 VB030 LR031 AL027 n1095 n0080 bd070  
 BK000 VB030 BE034 BK000 bd070 LV340 DS345 lv325 DS347 AN335 SS035 AL025 BK000 BK000 n0088  
 n3155 bd068 VB027 PS029 LR026 KI030 be034 AL034 VB037 PS039 AL044 VB033 PS038 BE034 AL044  
 VB040 PS041 LR044 KI039 AL046 BK000 VB038 PS036 LR040 AL039 KI040 PS060 AL025 lr019 VB036  
 SS039 GI013 b1080 it090 n3120 n1105 n0085 n2125 n0090 n1105 BK000 SS044 VB025 LR030 ca025  
 be030 VB022 SS038 CA026 BE030 LR029 n0150 VB025 SS044 PS022 LR024 CA020 be034 PS018 AL027  
 an329 n0080 bd077 n1105 n2145 ro000 BK078 mu075 kr083 it095 ko078 LR326 GI001 AN331 al342



SS045 SS036 LR327 GI028 BK000 BK000 GI017 SS041 LR041 SS054 LR348 SS039 LR325 BK000 n0104  
 BD090 h1321 DS011 VB037 SS042 PS036 ko090 it086 mu080 kr080 b1090 ko090 kr080 b1090 it085  
 n0080 n1105 VB052 GI013 LR032 be031 BK000 SS041 HL322 BK000 SS036 LR022 BE035 SS035 PS021  
 n3139 n2113 n0085 n1100 bd072 BK075 kr080 b1090 it085 ko079 n3147 n0087 n2113 LV351 an331  
 VB025 SS034 PS026 VB026 PS023 LR023 GI012 BE035 BK000 VB026 PS022 SS035 bd075 BK000 en098  
 kr080 ko080 it087 BK000 n1102 n0084 SS040 KI049 n1102 n0084 mu080 ko090 kr080 b1092 it085  
 BK000 kr080 b1092 it084 KR080 ko080 it074 it074 b1095 it087 kr082 b1090 it088 BK000 LV017  
 LR025 an337 b3071 it086 b1090 n3124 n1102 n0084 VB024 SS036 PS028 KI048 n1102 ro060 n0090  
 n2130 BK077 SS039 an328 ko085 BD080 it080 n2116 n3125 n2130 n1135 n0090 bd075 BK000 bd075  
 BK000 en095 SS037 PS023 BE032 n2110 n3120 VB036 SS037 BE031 BD075 LR025 PS024 CA028 BE031  
 VB024 kr077 it085 ko080 n2110 n1101 n0086 BK000 VB027 SS035 LR029 KI024 PS025 fe356 PS022  
 KI014 HL326 GI012 fe354 DS009 al018 n0114 ko075 it082 CA028 BE032 al019 VB026 KI014 AL023  
 BK081 VB035 SS033 AL043 BE035 SS037 bd072 n0085 BK080 bd068 it090 b1090 kr077 ko078 SS035  
 PS040 LR039 BK000 SS037 PS040 AL040 GI037 LR043 GI055 SS041 BK000 KI006 LV352 ds358 n1101  
 n0086 SS036 CA020 BE035

66=ML 62.56N 168.71W 461 46 92deg 13 41 of 41 bearings  
 1924.00 1925.00 1926.00 1927.00 1928.00 1929.00 1930.00 1931.00 1932.00 1933.00  
 1934.00 1935.00 1936.00  
 AL333 DS325 LV320 AN284 FE314 AN284 FE312 DS323 LV319 FE316 DS324 AN292 LV317 DS325 FE308  
 LV324 FE316 DS327 AN291 LV314 FE316 DS324 AN290 FE316 DS322 AN287 HL322 HL311 LV322 LV318  
 AN289 FE322 DS324 AN292 LV322 HL319 DS324 LV316 AN331 GI331 AN291

67=HR 51.50N 12.58E 124 68 83deg 5 10 of 11 bearings  
 1937.00 1938.00 1939.00 1940.00 1941.00  
 RO000 BK000 RO000 BK082 SS040 LR042 BE045 CA047 LR041 CA040 BE044

68=MS 52.94N 12.45E 0 0 0deg 1 2 of 2 bearings  
 1942.00  
 RO000 BK058

69=MV 50.48N 27.46E 0 0 0deg 1 2 of 2 bearings  
 1979.00  
 IT100 KO070

70=MW 54.07N 155.37E 2491 192 54deg 2 4 of 4 bearings  
 1980.00 1981.00  
 HL325 AN281 KI326 DS320

71=MX 69.21N 29.68E 109 36 126deg 6 9 of 12 bearings  
 1982.00 1983.00 1984.00 1985.00 1986.00 1987.00  
 n1150 n0088 N3128 N2087 N2087 N3120 N3145 n2120 KI028 AN359 KI029 AN359

72=N9 44.59N 30.30E 9980 536 130deg 2 8 of 8 bearings  
 1988.00 1989.00  
 VB040 PS040 LR044 BE051 BE049 LR047 GI035 AL037

73=NA 49.95N 31.88E 102 27 104deg 8 25 of 30 bearings  
 1990.00 1991.00 1992.00 1993.00 1994.00 1995.00 1996.00 1997.00  
 IT100 MU076 KO070 b1103 BD082 N0108 bk098 N2150 IT101 MU075 BL097 KO075 MU078 BL100 KR083  
 KO070 KO073 MU075 N0100 N1140 bk100 BD081 BK093 BD081 bk094 N1140 N0108 BE045 RD082 bk000

74=ND 57.66N 31.46E 166 77 146deg 3 6 of 12 bearings  
 1998.00 1999.00 2000.00  
 VB035 SS034 n1000 n3000 n2130 bd082 n0000 N3166 N2139 n1091 N1125 N0085

75=NJ 53.25N 44.70E 944 118 99deg 2 6 of 7 bearings  
 2037.00 2038.00  
 KR070 KO062 b1070 IT080 MU070 MU061 IT075

76=NK

51.52N 7.27E 4 3 9deg 52 176 of 297 bearings

2039.00	2040.00	2041.00	2042.00	2043.00	2044.00	2045.00	2046.00	2047.00	2048.00
2049.00	2050.00	2051.00	2052.00	2053.00	2054.00	2055.00	2056.00	2057.00	2058.00
2059.00	2060.00	2061.00	2062.00	2063.00	2064.00	2065.00	2066.00	2067.00	2068.00
2069.00	2070.00	2071.00	2072.00	2073.00	2074.00	2075.00	2076.00	2077.00	2078.00
2079.00	2080.00	2081.00	2082.00	2083.00	2084.00	2085.00	2086.00	2087.00	2088.00
2089.00	2090.00								

ro000 n1117 n2135 n0093 n0083 KR078 AL023 an338 PS034 LV025 SS035 LR040 VB034 DS029 fe229

LR044 GI010 SS038 an333 SS038 LR045 SS038 an333 n0090 PS038 BE027 an328 HL326 SS035 BE048

AL024 PS043 BK000 VB020 HL326 FE006 n0088 BD077 SS041 it090 ko080 bl090 BK000 ro070 BK000

bd079 SS035 gi332 an331 ko080 mu084 bl095 it090 KR084 ro055 n3120 bd077 BK000 HL323 KR082

ko070 bl090 it087 BK000 BK000 PS028 LV349 LR028 HL324 fe351 DS004 an333 VB027 AL023 BK000

LV348 AN336 SS036 LV348 VB030 VB027 SS036 LV349 LR026 HL323 be031 AN352 LV349 HL323 AN352

VB027 SS053 LV359 BE048 AL024 BK000 LR030 CA032 an333 BE037 DS003 VB024 SS036 LR028 SS036

ds002 an329 CA028 be031 VB023 HL326 HL329 be033 an332 al017 SS036 bk074 ro000 BD075 SS041

an331 VB037 SS038 HL325 fe353 an328 AL022 ro000 VB025 SS049 be031 al018 al018 LV358 fe355

DS003 an329 BK000 BK000 BK000 SS039 LV024 HL332 ds002 an328 ro000 n2110 n0085 bd075 BK000

SS038 LR028 HL331 GI009 FE356 DS004 an330 VB029 lv344 HL322 GI013 an328 ro000 n0088 bd077

BK000 mu080 KR085 ko079 bl088 it090 fe351 lv347 SS036 LR030 BE034 AL016 BE033 KI016 lr346

AL018 an330 SS036 LV352 hl324 fe354 an332 ro000 n0085 SS051 SS036 CA047 DS007 BE050 LV358

fe339 n0090 ro000 VB017 BE034 SS038 hl325 FE002 DS358 an333 SS036 PS021 HL332 GI014 FE355

DS006 be033 DS002 hl324 an333 VB023 SS045 PS021 GI014 be033 SS036 FE357 BE046 PS042 an328

SS056 GI034 an332 SS035 bd075 n0087 be033 GI004 an332 HL326 LV354 DS006 al017 SS036 FE356

BK000 ro000 n0090 BK000 SS036 BE036 DS002 FE356 hl325 an328 ro035 n1125 n0085 KR070 SS036

LV002 FE351 DS002 n0000 BD077 n0087 n0087 n3000 PS015 an331 n0090 n2130 BK000 ro040 BD075

SS036 GI021 ro000 BK000 n2110 n0090 ro000 ko080 KR079 bl090 it089 ko078 bl088 it087 fe345

VB036 KI010 SS038 BK000 VB038 SS037 BK000 n3120 n0090 en099 BD077 it090

77=NS

64.24N 22.64E 0 0 0deg 1 2 of 2 bearings

2091.00

N2150 N1110

78=NU

50.04N 134.78E 364 84 49deg 72 274 of 276 bearings

2092.00	2093.00	2094.00	2095.00	2096.00	2097.00	2098.00	2099.00	2100.00	2101.00
2102.00	2103.00	2104.00	2105.00	2106.00	2107.00	2108.00	2109.00	2110.00	2111.00
2112.00	2113.00	2114.00	2115.00	2116.00	2117.00	2118.00	2119.00	2120.00	2121.00
2122.00	2123.00	2124.00	2125.00	2126.00	2127.00	2128.00	2129.00	2130.00	2131.00
2132.00	2133.00	2134.00	2135.00	2136.00	2137.00	2138.00	2139.00	2140.00	2141.00
2142.00	2143.00	2144.00	2145.00	2146.00	2147.00	2148.00	2149.00	2150.00	2151.00
2152.00	2153.00	2154.00	2155.00	2156.00	2157.00	2158.00	2159.00	2160.00	2161.00
2162.00	2163.00								

VB340 PS337 KI332 AL332 LV322 HL314 FE318 DS333 AN292 AL330 LV322 FE309 DS328 AN290 LV319

HL320 AN287 FE314 AN288 LV320 LV338 FE326 DS332 LV319 DS327 AN294 FE316 AN289 LV317 FE314

AN289 LV327 KI325 DS322 AN289 KI320 HL314 FE328 DS327 AN288 gi147 KI325 FE317 AN291 LV315

KI330 HL316 FE321 DS327 AN290 PS337 HL315 GI313 FE316 DS328 AN291 FE314 AN290 LV311 KI330

AN291 LV316 AN289 LV325 HL321 AN288 LV317 DS327 FE314 GI325 FE312 DS323 HL314 LV319 GI031

FE307 DS325 AN290 LV319 HL314 FE316 AN286 DS329 LV320 DS331 KI333 AN295 FE317 LV319 DS325

AN293 HL315 FE316 DS331 AN290 FE314 DS322 AN290 HL317 PS336 KI326 AN291 LV317 GI328 AN291

HL314 FE322 PS336 KI328 HL315 FE316 DS323 AN292 AN288 FE325 GI320 DS328 AN290 LV317 HL310

FE319 AN287 LV318 AL330 LV315 KI331 HL310 DS329 FE318 AN291 FE324 AN290 AL330 DS332 GI335

AL334 HL311 AN289 LR335 FE329 LV317 AN291 HL315 AL332 LV319 KI331 HL315 GI327 FE314 AN289

AL326 LV322 KI327 HL311 FE315 DS326 AN292 AN284 LV317 HL313 FE316 AN291 DS321 AN293 LV319

HL315 AN289 LV320 FE314 LV317 AN290 LV318 AN290 LV314 AN289 AN289 FE313 DS324 HL314 KI326

LV320 HL315 AN287 FE314 LV318 HL316 FE314 DS324 AN290 HL314 FE312 DS323 LV318 AN288 LV316

HL314 DS327 FE314 HL313 LV315 AN286 FE314 DS324 LV320 DS326 FE312 AN288 LV323 HL311 DS320

FE312 LV316 FE333 lv003 KI329 HL313 FE316 AN289 FE317 DS323 AN288 AN288 HL317 AN288 FE318

DS326 LV316 FE314 HL314 LV318 HL313 LV317 DS328 AN289 KI328 AL333 FE316 GI356 DS325 LV316

KI327 HL318 DS323 LV319 HL315 FE314 LV322 AN293 LV320 HL317 AN289 DS323 KI327 HL320 DS324

AN288 LV316 HL312 AN288 GI319 DS326 AL329 LV318 KI326 HL320 FE317 DS321 AN286 LV318 KI330

FE317 AN288 DS320 KI329 FE316 AN291

79=00 48 25N 17.78E 0 0 0deg 1 2 of 2 bearings  
2164.00  
SS044 VB043

80=00 55.33N .46W 0 0 0deg 1 2 of 2 bearings  
2165.00  
PS041 LR045

81=PF 47.19N 72.04E 393 188 134deg 20 52 of 55 bearings  
2166.00 2167.00 2168.00 2169.00 2170.00 2171.00 2172.00 2173.00 2174.00 2175.00  
2176.00 2177.00 2178.00 2179.00 2180.00 2181.00 2182.00 2183.00 2184.00 2185.00  
n1140 N0080 bk000 AN338 GI039 AN333 LR031 DS356 FE351 DS354 LV343 HL325 FE352 AN321 HL325  
AN289 AN327 GI002 DS345 HL325 FE340 HL326 FE351 GI340 HL324 FE352 PS011 LV343 HL320 FE340  
AN312 SS036 BK070 HL319 AN324 GI349 AN326 MU075 KO068 BK075 BD066 BE032 N3115 N1085 RO000  
BD067 N1090 BL075 IT075 KR080 RO050 BD067 bk000 HL324 GI346

82=PK 51.49N 35.81E 744 151 132deg 2 4 of 4 bearings  
2186.00 2187.00  
VB037 AL040 N1130 N0100

83=PL 51.67N 7.28E 16 7 8deg 27 72 of 89 bearings  
2188.00 2189.00 2190.00 2191.00 2192.00 2193.00 2194.00 2195.00 2196.00 2197.00  
2198.00 2199.00 2200.00 2201.00 2202.00 2203.00 2204.00 2205.00 2206.00 2207.00  
2208.00 2209.00 2210.00 2211.00 2212.00 2213.00 2214.00  
VB041 AL037 LR037 AL037 GI018 ro000 VB043 PS045 LR046 BK000 mu080 it090 KR070 ko067 BD082  
LR042 BE043 ro000 BK000 LR046 GI025 BD085 b1110 VB038 SS038 PS039 LR044 GI024 AL033 it108  
mu093 b1108 LR026 DS032 VB037 SS035 LR044 BK000 n0091 BE041 PS043 KI031 VB037 FE020 LV028  
DS026 BE048 VB036 LV026 DS027 BE046 LR016 ro000 BE045 PS038 KI035 CA040 AL040 PS039 LR042  
GI036 DS034 BE048 CA043 mu090 ko084 n3174 KI033 DS032 BE049 LR042 DS025 ro000 BK000 LR028  
GI036 AL038 VB042 KI028 BE048 AN002 gi310 CA053 GI024 BE045 LR045 en140 KI022 GI025

84=PM 54 36N 143.71E 1387 231 53deg 3 7 of 7 bearings  
2215.00 2216.00 2217.00  
LV323 HL321 AN288 LV325 AN289 LV321 FE317

85=R6 43.82N 27.57E 0 0 0deg 1 2 of 2 bearings  
2218.00  
KO100 KR110

86=R9 51 27N 7.27E 4 1 179deg 61 198 of 235 bearings  
2219.00 2220.00 2221.00 2222.00 2223.00 2224.00 2225.00 2226.00 2227.00 2228.00  
2229.00 2230.00 2231.00 2232.00 2233.00 2234.00 2235.00 2236.00 2237.00 2238.00  
2239.00 2240.00 2241.00 2242.00 2243.00 2244.00 2245.00 2246.00 2247.00 2248.00  
2249.00 2250.00 2251.00 2252.00 2253.00 2254.00 2255.00 2256.00 2257.00 2258.00  
2259.00 2260.00 2261.00 2262.00 2263.00 2264.00 2265.00 2266.00 2267.00 2268.00  
2269.00 2270.00 2271.00 2272.00 2273.00 2274.00 2275.00 2276.00 2277.00 2278.00  
2279.00  
n0000 BD100 RO000 bk096 KR100 b1130 it130 LR045 AN006 VB041 BE047 n0133 n2173 n1166 BD096  
n0073 BE048 AN003 VB041 SS042 PS041 LR044 n0073 BD092 n3155 n2142 VB042 PS042 BE050 BD098  
bk095 BK000 KR104 ko080 BK000 LR055 AN351 RO310 BK091 KR100 IT125 b1137 ro050 BK000 N1163  
N0140 SS036 PS041 BE050 AL044 LR048 VB044 LR048 GI033 BE046 BD099 BK000 VB046 CA056 BE053  
n0130 N0150 BD099 SS037 CA048 AL041 GI039 BE053 VB038 AL043 PS046 BE049 LR042 VB041 SS036  
LR044 AL041 SS036 CA049 BE049 GI041 VB040 n0110 n2140 n3186 n1162 GI050 PS041 BE050 SS042  
KI037 AL046 LR043 VB034 PS042 BE048 AL041 VB039 LV027 DS037 CA049 PS039 AN356 AL045 BE050  
FE034 SS043 PS041 CA049 AL043 BE051 LR044 N1176 n0130 BD098 DS031 VB040 PS042 LR043 BE050  
AL038 RO000 BD095 BK000 ro055 BD092 n0090 BD068 KR090 BK000 RO000 BK000 KR102 RO000 BD099  
bk098 BD105 BK000 RO000 BD098 bk103 BD100 BK000 BK000 ro030 BD101 BK000 RO000 BK000 ro045  
BK000 bk101 KR102 b1072 BK000 BD098 bk100 RO000 ro030 bk100 bk100 PS025 LR044 GI021 LR048  
BE050 VB041 BD099 BK000 BK000 SS041 PS042 LR046 BE050 AL041 BK000 RO000 BK000 BK000 RO000

BK000 bk102 b1130 LR048 KI038 VB042 LR048 RO000 bk093 VB040 AN006 PS043 CA048 BE048 AL039  
 VB039 SS039 BD098 n0130 CA049 AL042 LR044 VB038 BE049 SS036 AL041 LR047 BE050 AN293 PS042  
 SS036 VB041 AL037 LR045 BE051 PS040 BK000 RO000 KR102 LR043 SS034 AL038 VB041 VB040 PS036  
 BE049 AL039 LR043 BD098 FE034 AL045 AN354 CA047 BE050 PS045

87=RA

49.93N 135.53E 308 70 50deg 104 440 of 441 bearings  
 2280.00 2281.00 2282.00 2283.00 2284.00 2285.00 2286.00 2287.00 2288.00 2289.00  
 2290.00 2291.00 2292.00 2293.00 2294.00 2295.00 2296.00 2297.00 2298.00 2299.00  
 2300.00 2301.00 2302.00 2303.00 2304.00 2305.00 2306.00 2307.00 2308.00 2309.00  
 2310.00 2311.00 2312.00 2313.00 2314.00 2315.00 2316.00 2317.00 2318.00 2319.00  
 2320.00 2321.00 2322.00 2323.00 2324.00 2325.00 2326.00 2327.00 2328.00 2329.00  
 2330.00 2331.00 2332.00 2333.00 2334.00 2335.00 2336.00 2337.00 2338.00 2339.00  
 2340.00 2341.00 2342.00 2343.00 2344.00 2345.00 2346.00 2347.00 2348.00 2349.00  
 2350.00 2351.00 2352.00 2353.00 2354.00 2355.00 2356.00 2357.00 2358.00 2359.00  
 2360.00 2361.00 2362.00 2363.00 2364.00 2365.00 2366.00 2367.00 2368.00 2369.00  
 2370.00 2371.00 2372.00 2373.00 2374.00 2375.00 2376.00 2377.00 2378.00 2379.00  
 2380.00 2381.00 2382.00 2383.00  
 LV323 AN290 HL321 FE319 AN291 LV312 HL320 FE304 DS326 AN285 LV314 AN289 AN290 LV316 AN288  
 FE331 LV322 AN298 DS325 KI329 LV318 HL320 FE315 AN287 FE316 AN288 LV318 LV318 FE316 AN287  
 DS320 LV324 HL320 GI328 FE316 DS325 AN289 LV323 HL320 FE316 AN290 LV313 HL315 FE310 KI328  
 DS320 HL320 VB029 KI322 AL335 LV318 GI328 FE314 DS322 AN291 KI315 KI326 HL315 LV318 LV318  
 FE316 GI328 AN292 DS324 FE311 KI324 DS320 AN284 LV325 DS322 AN287 LV313 FE313 HL312 AN288  
 DS320 LV315 KI317 HL318 AN287 DS325 LV318 FE316 AN288 GI327 GI325 HL311 AN293 FE316 LV324  
 AN290 FE317 LV315 LV316 KI328 HL311 FE313 DS325 LV317 KI323 HL314 GI320 FE313 DS326 LV315  
 KI325 FE311 DS325 AN287 LV312 KI331 DS327 LV317 HL315 DS327 HL319 FE321 DS325 AN294 LV321  
 HL317 GI322 FE308 DS327 AN287 HL316 AN291 KI328 LV320 AN290 DS323 AN294 DS326 LV320 KI325  
 FE312 LV321 HL315 DS326 AN286 HL325 FE315 DS320 AN289 LV321 KI329 HL316 DS327 AN289 LV316  
 HL312 FE313 AN287 LV315 KI326 FE310 DS318 AN287 LV323 HL320 AN288 HL317 AN291 LR341 FE321  
 LV319 FE315 DS324 AN294 LV319 FE313 AN291 FE313 DS324 AN288 HL312 PS334 LV319 KI317 LV318  
 PS336 HL309 GI324 DS326 AN289 FE313 LV315 HL312 GI352 FE314 AN289 DS321 LV319 HL313 FE315  
 DS322 AN290 HL325 GI329 KI316 AN291 LV316 DS325 FE316 LV321 HL313 AL338 DS327 FE317 AN298  
 LV316 KI322 GI324 FE316 AN290 KI322 GI313 DS318 PS035 LV315 LR326 AL332 GI313 FE319 AN290  
 LV317 KI320 GI314 AN289 DS324 FE310 FE317 GI326 LV319 DS328 HL314 AN294 LV314 HL312 FE313  
 DS325 AN288 LV319 HL315 FE315 DS320 AN288 KI325 LV318 AN287 FE313 HL313 DS320 FE312 DS326  
 HL314 AN291 FE316 VB346 PS338 AN297 LV316 FE316 DS324 VB035 PS037 KI145 HL315 LR341 LV312  
 AN286 FE314 DS323 LV318 KI325 HL314 FE315 DS320 HL314 GI319 DS327 LV319 FE314 AN285 LV322  
 KI327 HL314 FE316 DS328 AN289 AL337 GI326 FE313 AN289 DS321 LV317 HL314 LV320 KI330 FE315  
 DS325 AN292 LV316 HL310 FE312 AN287 LV317 AN285 AN285 GI032 AN290 PS334 KI323 HL325 GI330  
 DS325 LV318 AN289 FE315 DS323 FE313 AL332 KI322 GI327 DS324 AN290 HL311 FE317 DS326 LV317  
 DS326 FE316 FE316 LV321 DS323 AN289 HL316 KI325 DS325 LV314 FE311 KI326 HL315 HL315 DS348  
 AN291 LV318 FE312 HL314 DS325 LV315 FE312 DS326 AN283 LV320 FE312 LV315 FE312 DS325 LV313  
 DS325 LV319 FE312 DS325 FE312 DS325 LV315 LV315 DS325 AN306 LV315 GI329 DS326 AN290 DS326  
 AN288 LV319 DS326 AN288 LV318 DS326 FE311 DS326 FE325 LV317 FE326 AN289 DS322 FE318 GI342  
 AN289 DS323 LV320 DS325 KI327 GI322 AN283 LV314 HL311 LV315 LV314 AN289 HL315 LV320 HL311  
 FE313 DS322 AN289 HL314 GI319 AN291 LV314 GI023 LV314 FE316 HL316 AN285 FE308 LV320 DS317  
 HL312 AN287 FE311 AN288 HL315 AN289 LV316 FE317 KI326 DS324 FE311 AN289 KI327 FE311 DS322  
 FE314 AN286 DS325 LV315 DS322 AN288

88=RD

49.86N 35.98E 222 51 115deg 10 20 of 22 bearings  
 2384.00 2385.00 2386.00 2387.00 2388.00 2389.00 2390.00 2391.00 2392.00 2393.00  
 KR087 IT104 LR014 BE043 N2145 N1120 BD090 BK080 KR088 N0100 VB035 AL026 GI002 AN340 KR090  
 IT090 VB040 GI026 GI027 PS034 RO000 NO080

89=RP

49.69N 38.23E 238 78 122deg 6 13 of 15 bearings  
 2394.00 2395.00 2396.00 2397.00 2398.00 2399.00  
 MU077 IT095 KO077 EN123 N2130 N0100 EN120 VB024 SS040 GI038 BE043 RD075 bk000 ro000 BK077

90=RQ

54.12N 28.39E 53 28 96deg 16 53 of 61 bearings  
 2400.00 2401.00 2402.00 2403.00 2404.00 2405.00 2406.00 2407.00 2408.00 2409.00  
 2410.00 2411.00 2412.00 2413.00 2414.00 2415.00

KR070 KO070 N0102 N1145 KR075 IT081 KO060 BD074 LR014 CA042 VB039 BE046 N0090 RL065 KR074  
 KO062 IT075 BK000 N0088 BD077 IT087 BL085 AN005 FE021 IT083 KO050 MU050 PS037 FE021 N0160  
 N2140 BD099 BK000 BE039 LR040 KO054 BL060 IT085 KR070 BK093 BK000 IT083 KO055 N1105 N0085  
 KI031 GI029 N0090 N2150 N1145 N0105 DS025 LV021 AN001 CA045 BE047 N2158 N1142 N0105 N2145  
 N0085

91=RS 54.45N 12.44E 197 75 72deg 2 3 of 5 bearings  
 2416.00 2417.00  
 RO000 BD082 BD067 IT070 KO050

92=RT 57.40N 29.35E 149 61 123deg 11 44 of 46 bearings  
 2418.00 2419.00 2420.00 2421.00 2422.00 2423.00 2424.00 2425.00 2426.00 2427.00  
 2428.00  
 VB034 LR041 BE036 VB030 PS035 LR031 KI033 GI029 AL034 VB032 PS036 LR036 GI024 BE042 AL032  
 FE015 N3125 N0090 N1105 N0080 N2145 LR042 VB038 GI330 GI021 VB040 BE041 AL029 PS036 LV004  
 KI020 GI029 FE009 DS011 LR038 GI029 N1130 N0100 N3140 BE043 VB039 PS037 LR045 CA046 LR037  
 AL028

93=S5 51.12N 7.28E 6 2 29deg 17 39 of 58 bearings  
 2429.00 2430.00 2431.00 2432.00 2433.00 2434.00 2435.00 2436.00 2437.00 2438.00  
 2439.00 2440.00 2441.00 2442.00 2443.00 2444.00 2445.00  
 IT130 BL130 KR103 N2185 N0145 BD096 BK000 BK090 IT120 KR104 BL140 MU040 BD100 BK000 KR080  
 KO050 MU030 BD097 LR042 SS045 VB039 PS048 BD098 LR047 SS046 VB042 LR046 VB041 BE053 SS046  
 BE055 SS046 VB041 BD098 N1173 N0145 BD100 N0146 N0000 BK102 SS035 LR051 N0125 BK099 N1165  
 N0135 BD098 BK000 RK102 BL125 KR103 IT130 RO040 BD095 BK095 N1075 N2080 N3095

94=S7 50.15N 16.85E 0 0 0deg 1 2 of 2 bearings  
 2446.00  
 KO061 KR097

95=SB 49.60N 53.17E 0 0 0deg 1 2 of 2 bearings  
 2447.00  
 GI018 AN344

96=SE 40.39N 67.04E 0 0 0deg 1 2 of 2 bearings  
 2448.00  
 N1103 N0088

97=SF 59.52N 31.44E 85 53 100deg 4 11 of 11 bearings  
 2449.00 2450.00 2451.00 2452.00  
 N0075 N3160 N2140 RL050 IT050 N0077 IT050 KR055 N1120 N0075 BD060

98=SG 44.91N 63.16E 1719 310 139deg 2 4 of 6 bearings  
 2453.00 2454.00  
 N2128 N1111 N0087 BD075 N1100 N2115

99=SK 61.72N 155.92W 347 23 99deg 18 60 of 60 bearings  
 2455.00 2456.00 2457.00 2458.00 2459.00 2460.00 2461.00 2462.00 2463.00 2464.00  
 2465.00 2466.00 2467.00 2468.00 2469.00 2470.00 2471.00 2472.00  
 AN286 GI327 VB336 KI323 LV318 VB340 KI323 FE312 DS327 FE317 AN289 DS328 DS324 AN287 GI337  
 FE310 AN286 LV319 KI325 DS324 LV315 KI326 FE310 LV315 AN283 VB334 LV312 GI328 FE327 AN293  
 LR328 DS324 AN290 FE316 LV318 HL313 DS327 AN294 LV313 AN324 KI318 DS319 GI331 LV314 FE311  
 DS312 AN285 LV314 KI326 GI319 DS327 AN290 LV315 HL312 LV315 FE312 DS324 AN285 AN288 HL316

100=SL 55.50N 43.18E 0 0 0deg 1 2 of 2 bearings  
 2473.00  
 N0083 N2125

101=SM 51.10N 7.27E 1114 5 31deg 2 5 of 5 bearings  
 2474.00 2475.00

BK072 SS045 SS041 BE044 BK000

102=SU

51.16N 7.28E 5 1 5deg 65 134 of 193 bearings  
 2476.00 2477.00 2478.00 2479.00 2480.00 2481.00 2482.00 2483.00 2484.00 2485.00  
 2486.00 2487.00 2488.00 2489.00 2490.00 2491.00 2492.00 2493.00 2494.00 2495.00  
 2496.00 2497.00 2498.00 2499.00 2500.00 2501.00 2502.00 2503.00 2504.00 2505.00  
 2506.00 2507.00 2508.00 2509.00 2510.00 2511.00 2512.00 2513.00 2514.00 2515.00  
 2516.00 2517.00 2518.00 2519.00 2520.00 2521.00 2522.00 2523.00 2524.00 2525.00  
 2526.00 2527.00 2528.00 2529.00 2530.00 2531.00 2532.00 2533.00 2534.00 2535.00  
 2536.00 2537.00 2538.00 2539.00 2540.00  
 mu070 kr092 b1113 ko090 AL037 VB040 ro070 n0122 VB040 LR043 n0090 n2155 SS033 LR041 n2135  
 n0100 BD090 BK093 ko070 BK000 KR100 ko090 BK000 BK000 bd064 ro050 BK000 BK000 RO000 n1141  
 n3172 n2148 n0116 n0116 BK000 PS038 VB040 LR041 mu090 it105 KR097 b1105 ko086 AL038 PS035  
 GI035 BK000 ko086 KR070 n3150 n0095 BE047 LR043 PS044 VB035 VB037 PS040 LR043 LR039 BE046  
 RO000 LR038 BK000 RO000 mu088 it110 bd052 BE046 DS033 AN008 mu065 ko070 BK000 PS040 LR038  
 AL040 GI327 CA050 BE048 BK000 GI039 PS035 LR038 BK000 VB039 LR039 RO000 BK065 RO000 n2155  
 PS038 LR038 GI026 AL035 GI033 LR039 KI032 FE021 AL040 mu090 KR100 it113 ko085 KR093 ko088  
 n2145 n1105 n0080 SS040 BK000 RO000 BK000 FE019 AN003 n0105 BK000 SS042 GI031 VB039 RO000  
 KR096 it108 b1110 ko085 ro180 BD093 RO000 BK000 BK000 n0066 RO000 HK095 VB040 b1090 IT130  
 ko070 SS032 GI012 DS031 AN358 ro060 n0000 BK000 BK086 PS041 BK000 b1114 it113 KR096 ko083  
 ro030 BK091 BK000 KR093 LV013 AN359 SS039 KI027 VB039 GI024 BE047 AN002 DS028 KI033 RO000  
 BK000 VB040 LR046 AL040 BK000 LR043 BE045 PS036 KI014 GI023 VB035 LR043 it113 ko075 BK000  
 LR043 VB045 VB039 LV012 BD054 BK000 mu096 RO000 BK000 kr092 b1100 it113 BK000

103=TD

11.08N 62.57E 0 0 0deg 1 2 of 2 bearings  
 2541.00  
 GI023 BE051

104=TF

58.81N 5.80E 37 3 94deg 23 55 of 86 bearings  
 2542.00 2543.00 2544.00 2545.00 2546.00 2547.00 2548.00 2549.00 2550.00 2551.00  
 2552.00 2553.00 2554.00 2555.00 2556.00 2557.00 2558.00 2559.00 2560.00 2561.00  
 2562.00 2563.00 2564.00  
 N0130 n3175 N0090 b3065 N0095 n2120 n1105 DS015 FE004 LV015 RO000 BK000 KI022 GI033 BE044  
 AL031 n1110 N0085 it074 AN356 SS042 BK000 VB044 SS038 LR043 ro050 N0090 bd062 BK000 KI040  
 VB032 LR038 kr080 it078 mu060 ko050 BK000 AL036 SS036 RO000 BK000 b3061 bk037 kr067 b1061  
 RO000 kr065 ko060 it076 b1060 RO000 bd064 ko063 b1065 ca289 be291 a1278 n1120 N0075 AL030  
 PS041 HL353 FE002 DS019 LV010 AN320 ro020 AL031 KI046 BK000 BK000 bd062 LV019 FE022 AN354  
 bd000 AN354 AL028 BK000 BE026 N0115 n3145 VB027 KI032 DS030 AN354

105=TK

49.13N 135.40E 632 149 49deg 17 63 of 63 bearings  
 2565.00 2566.00 2567.00 2568.00 2569.00 2570.00 2571.00 2572.00 2573.00 2574.00  
 2575.00 2576.00 2577.00 2578.00 2579.00 2580.00 2581.00  
 HL313 AN289 HL319 FE316 AN285 LV317 HL317 AN290 AL332 AN290 LV320 FE317 DS323 LV317 KI330  
 HL319 FE316 DS323 LV315 HL315 FE312 DS321 AN286 HL320 GI340 AN288 HL314 DS321 LV315 LV316  
 HL315 FE314 FE312 AN293 HL312 FE313 AN287 KI325 LV320 FE314 HL317 AN288 DS320 KI328 LV316  
 DS326 AN288 FE316 LV312 HL318 FE312 GI327 AN286 HL314 FE313 DS324 AN289 HL317 AN288 DS322  
 KI036 FE309 LV316

106=U7

49.81N 16.72E 34 16 116deg 23 77 of 83 bearings  
 2593.00 2594.00 2595.00 2596.00 2597.00 2598.00 2599.00 2600.00 2601.00 2602.00  
 2603.00 2604.00 2605.00 2606.00 2607.00 2608.00 2609.00 2610.00 2611.00 2612.00  
 2613.00 2614.00 2615.00  
 BD094 N0140 bk000 KO055 MU075 KR101 IT132 BD096 bk077 BL135 MU090 KO085 N3195 N2185 IT140  
 ro060 N0138 BK094 BK075 LR044 PS041 BE047 CA050 RO030 BD096 N1165 N0145 bk000 bk000 KR098  
 IT096 BL138 KO060 N2180 BD101 SS043 PS048 VB036 VB041 PS033 LR045 SS039 KI038 RO000 BD095  
 RO000 BD097 VB039 SS038 PS040 LR046 PS044 LR044 N0120 N1170 N0140 N1156 KR108 BK101 BK101  
 LR048 SS044 BE049 BL135 KR100 CA051 BE054 PS040 VB043 LR044 GI042 n1152 N2164 AL045 VB035  
 VB043 BD100 SS052 VB045 BE050 AL039 GI032 CA049

107=UB

57.15N 37.50E 0 0 0deg 1 2 of 2 bearings

2662.00  
EN094 VB029

108=UD 51.13N 7.27E 8 2 8deg 18 43 of 65 bearings  
2663.00 2664.00 2665.00 2666.00 2667.00 2668.00 2669.00 2670.00 2671.00 2672.00  
2673.00 2674.00 2675.00 2676.00 2677.00 2678.00 2679.00 2680.00  
BD095 BK000 SS043 PS044 LR042 N3195 n0120 n2083 n0070 AN005 LR046 BE047 CA048 BD096 BK000  
kr096 it127 BD110 LR044 VB039 LR046 R0000 BK078 n2170 n1155 n0128 BD093 BK094 LR047 BE047  
AN004 n3185 BK000 n2170 R0000 BD090 n1153 mu083 KR102 ko080 it123 n0127 n0123 BD094 BK000  
BK000 BD094 n0115 BK000 en161 ro030 BK095 BD099 BK000 LR049 CA049 BE047 BK000 BK000 SS043  
BE052 n1156 n0123 bd005 BK000

109=UN 58.40N 31.75E 239 68 77deg 1 5 of 7 bearings  
2681.00  
N0080 b1060 b1060 KO042 KO043 KR055 KR055

110=VA 51.47N 7.27E 7 6 76deg 18 50 of 53 bearings  
2760.00 2761.00 2762.00 2763.00 2764.00 2765.00 2766.00 2767.00 2768.00 2769.00  
2770.00 2771.00 2772.00 2773.00 2774.00 2775.00 2776.00 2777.00  
FE022 LV028 AN347 AN358 PS035 LR033 FE016 AN358 FE019 DS020 CA053 BE053 PS034 LV015 LR041  
SS043 AN356 SS050 GI022 DS021 PS034 LR040 BE044 AL034 LV020 LR039 BE046 BK000 KR085 b1100  
SS051 CA040 BE044 KR086 it115 SS042 LR041 KI033 FE016 SS042 VB040 ro040 BK000 GI031 KI035  
LV017 LR040 FE016 AN353 KI007 GI003 VB037 BE045

111=VI 45.48N 134.60E 1285 471 51deg 3 6 of 7 bearings  
2778.00 2779.00 2780.00  
HL310 AN288 HL312 LV318 AN286 ki035 AN284

112=VL 55.56N 33.76E 283 132 154deg 3 4 of 6 bearings  
2790.00 2791.00 2792.00  
VB034 AL029 N3160 N0090 bk000 b1099

113=VN 47.56N 66.34E 397 173 140deg 20 52 of 55 bearings  
2808.00 2809.00 2810.00 2811.00 2812.00 2813.00 2814.00 2815.00 2816.00 2817.00  
2818.00 2819.00 2820.00 2821.00 2822.00 2823.00 2824.00 2825.00 2826.00 2827.00  
PS336 LV341 FE348 AN326 HL323 GI324 DS353 LV343 HL329 FE350 AN319 BE039 KI029 GI035 bk000  
KR073 N3150 N0110 HL322 HL325 AN326 AL006 AN003 N3108 N1085 AN324 FE356 HL319 an101 MU074  
KR090 IT100 KO068 FE348 LV001 BD067 bk000 N3110 N0083 IT075 DS359 DS355 KI041 LV358 GI330  
FE350 AN321 HL329 AN330 LR040 HL325 AN329 AL037 PS037 DS356

114=VU 41.44S 171.17E 3548 417 125deg 2 4 of 4 bearings  
2828.00 2829.00  
IT055 MU055 MU072 KO072

115=WA 56.42N 45.57E 183 100 126deg 4 10 of 10 bearings  
2830.00 2831.00 2832.00 2833.00  
KI016 HL350 DS017 AN351 N0082 N3135 N3140 AL026 BD061 KO056

116=WG 53.79N 7.27E 92 40 5deg 4 9 of 10 bearings  
2834.00 2835.00 2836.00 2837.00  
bk076 VB029 BD065 BK000 SS041 BK000 SS032 VB036 CA045 BE049

117=WQ 61.10N 172.45E 428 45 74deg 28 95 of 95 bearings  
2846.00 2847.00 2848.00 2849.00 2850.00 2851.00 2852.00 2853.00 2854.00 2855.00  
2856.00 2857.00 2858.00 2859.00 2860.00 2861.00 2862.00 2863.00 2864.00 2865.00  
2866.00 2867.00 2868.00 2869.00 2870.00 2871.00 2872.00 2873.00  
LV314 FE312 KI325 GI318 FE314 AL338 HL312 DS322 AN287 LV314 HL311 GI322 DS326 AN288 FE320  
AN288 DS320 LV319 AN288 DS324 HL313 GI334 FE316 DS326 GI314 KI321 LR356 HL318 AN287 AL323  
DS325 AN293 AN288 LV320 DS323 FE314 LV320 AN283 LV316 AN287 VB337 DS321 AN287 LV314 DS317  
AN280 LV316 KI329 AN287 AN286 GI028 LV317 KI327 DS317 VB040 LV315 KI328 DS326 AN291 DS327

GI301 AN294 HL313 FE316 GI330 AN291 LV318 FE315 DS324 AN287 AL335 VB344 KI327 FE319 DS325  
 AN288 GI327 FE317 DS325 AN289 AL339 LV315 AN287 DS321 HL332 AN337 FE312 DS325 AN285 HL314  
 AN286 AN284 LV329 KI325 DS322

118=WU 58.86N 30.01E 40 30 150deg 20 42 of 48 bearings  
 2886.00 2887.00 2888.00 2889.00 2890.00 2891.00 2892.00 2893.00 2894.00 2895.00  
 2896.00 2897.00 2898.00 2899.00 2900.00 2901.00 2902.00 2903.00 2904.00 2905.00  
 AL031 GI027 n3200 IT060 KO037 N3165 N2145 bk000 AL025 AN357 IT060 PS025 GI030 N0075 N3166  
 N2140 N0075 N2140 N3160 N0075 N2145 N3165 N2140 BL075 IT057 N3165 BD060 BD060 N2143 N1130  
 N2145 N0085 BE037 AL031 N1120 N0080 BL060 MU045 bk000 RO010 bk000 AL036 MU065 bk000 n1095  
 N0080 FE012 AN330

119=WV 55.98N 36.69E 51 29 125deg 20 65 of 74 bearings  
 2906.00 2907.00 2908.00 2909.00 2910.00 2911.00 2912.00 2913.00 2914.00 2915.00  
 2916.00 2917.00 2918.00 2919.00 2920.00 2921.00 2922.00 2923.00 2924.00 2925.00  
 EN094 BD060 N2120 N0090 N1105 BE037 HL349 HL349 VB029 VB029 AN356 LR034 PS030 AN356 ro000  
 BD065 bk000 BK063 MU060 KR062 IT072 KO056 AN357 KI023 LV019 FE023 N2138 N0085 KR060 MU070  
 N3155 N2135 N1130 ro000 n0100 n0110 BD075 n3000 N2130 n0000 N0093 N3154 N2138 N1110 N0095  
 n3000 n1000 N2146 N3155 BD064 KO048 KI029 GI021 DS017 AN357 N2145 IT072 BL070 N3155 N1125  
 N0080 N3153 N2133 N1118 SS054 AL028 RO050 N1112 N0080 EN102 BK062 N0095 N3151 N1121

120=X5 48.20N 21.27E 0 0 0deg 1 2 of 2 bearings  
 2926.00  
 LR046 VB042

121=XD 54.92N 34.57E 118 69 104deg 4 8 of 15 bearings  
 2927.00 2928.00 2929.00 2930.00  
 ro000 BD067 KO058 KR071 N2140 n0100 BD067 bk000 N0090 kr083 bl090 KO052 bk000 n0000 N1126

122=XI 45.90N 105.47E 1972 669 50deg 4 10 of 10 bearings  
 2931.00 2932.00 2933.00 2934.00  
 KI326 HL315 HL315 DS328 LV333 HL312 AN312 LV338 HL317 AN307

123=XN 58.81N 5.76E 57 4 99deg 11 21 of 41 bearings  
 2935.00 2936.00 2937.00 2938.00 2939.00 2940.00 2941.00 2942.00 2943.00 2944.00  
 2945.00  
 n1133 n3157 n2137 n3160 n2150 N0097 en120 bd088 n2130 n3180 BK000 BK000 VB036 PS041 LR042  
 CA045 BE050 bd062 ko090 it090 BE048 AN352 BK000 n3160 N0140 BE049 n3150 N0110 VB037 PS038  
 LR041 GI029 AL039 ko097 it105 kr091 mu100 N0085 n2105 BK000 ko090

124=XW 56.69N 7.27E 723 94 180deg 2 6 of 6 bearings  
 2946.00 2947.00  
 BK000 PS040 LR040 PS039 LR045 AL035

125=Z1 46.56N 20.67E 103 23 128deg 4 21 of 21 bearings  
 2948.00 2949.00 2950.00 2951.00  
 AN359 HL002 BD105 BK105 N3187 N2164 BK113 N3180 BD106 BK113 MU114 KO103 BL136 IT135 VB042  
 SS046 PS044 LV021 HL356 AN356 BK113

126=Z3 50.41N 14.60E 28 22 132deg 15 34 of 39 bearings  
 2952.00 2953.00 2954.00 2955.00 2956.00 2957.00 2958.00 2959.00 2960.00 2961.00  
 2962.00 2963.00 2964.00 2965.00 2966.00  
 IT140 KO045 BL165 KR101 BK093 N0145 N1175 N0143 n1109 n0101 n0000 N3195 N0130 VB056 LR047  
 PS042 LR045 RO000 BD090 VB043 BE052 PS040 GI038 RO030 BD093 BD098 KO053 N3198 N2187 N1177  
 N0143 n0000 n1000 N2187 PS043 LR048 KI036 N0135 BD099

127=ZA 61.28N 150.10W 53 1 157deg 27 93 of 93 bearings  
 2967.00 2968.00 2969.00 2970.00 2971.00 2972.00 2973.00 2974.00 2975.00 2976.00  
 2977.00 2978.00 2979.00 2980.00 2981.00 2982.00 2983.00 2984.00 2985.00 2986.00  
 2987.00 2988.00 2989.00 2990.00 2991.00 2992.00 2993.00



SS035 AN341 LV321 HL319 FE321 AN289 LV330 FE329 HL330 AN358 GI020 LV328 FE320 HL325 DS327  
 AN307 LR347 PS349 CA346 AN306 DS356 LV011 AN303 HL329 AN290 FE324 AN306 FE328 AL345 LV335  
 AN306 FE327 HL328 FE330 AN305 AN287 GI032 KI347 FE328 DS327 AN306 DS327 FE328 VB347 LR349  
 KI347 CA345 BE349 AN306 AN293 FE329 LV030 AN292 FE332 AN302 GI330 AN306 VB343 LV315 FE327  
 DS335 AN306 AL336 FE327 AN306 HL333 GI338 AN306 AN307 FE328 KI013 DS336 GI336 AN309 DS002  
 AN306 FE327 LV328 FE327 AN306 LV329 FE327 DS336 AN306 AL344 LV332 FE327 DS335 AN306 LV337  
 AN306 HL335 FE329

128=ZM

52.07N 11.07E 99 28 82deg 14 30 of 38 bearings  
 3003.00 3004.00 3005.00 3006.00 3007.00 3008.00 3009.00 3010.00 3011.00 3012.00  
 3013.00 3014.00 3015.00 3016.00  
 BD087 KR086 BK000 LR042 AL045 KR065 mu070 it074 AL033 PS032 LR040 PS043 KI032 AL030 VB034  
 BE045 AL029 HL335 BE045 VB039 PS031 GI028 AL031 VB038 AL029 VB033 PS034 BE045 RO000 VB038  
 ro040 BK062 RO000 BD088 mu094 it100 n2140 n0090

129=ZN

53.38N 38.37E 312 91 130deg 6 10 of 12 bearings  
 3017.00 3018.00 3019.00 3020.00 3021.00 3022.00  
 N2130 N0090 N0090 N2140 CA033 BE035 N0100 n1130 n1097 N2132 AL018 FE009

42 44N 26 2E A5	2020	591	131	10 ALB 45 ANB 3 BEB 53 CAB 50 DSB 32 KIB 37 LRB 48 PSB 45 SSB 49 VBB 45
55 25N 40 8E AR	1292	113	94	7 ALB 28 BDB 65 BDB 65 BKB 65 SSB 40 VBB 32
49 10N 133 55E BF	1245	318	49	16 DSB325 ANB289 ANB289 DSB326 DSB326 ANB289 FEB315 FEB314 GIB329 GIB330 HLB315 HLB315
KIB327 KIB327 LVB319 LVB319				
55 55N 34 18E DP	715	202	95	9 ANB355 ALB 29 ANB355 BDB 65 FEB 15 GIB 29 KIB 30 SSB 40 VBB 32
57 22N 32 59E GA	198	93	157	4 ANB358 BDB 61 N2B140 N3B160
59 58N 151 6E GD	1182	290	63	9 ALB325 ANB295 DSB327 FEB324 GIB326 HLB326 LVB322 PSB327 VBB338
53 48N 59 53E GF	870	335	111	7 ANB338 BDB 63 BKB 64 DSB 8 FEB 0 GIB 12 HLB342
50 54N 136 17E GS	1728	492	53	6 ANB289 DSB325 FEB318 HLB317 KIB326 LVB319
53 26N 28 3E GV	723	82	93	10 ALB 35 ANB358 BDB 74 BDB 75 BEB 44 BKB 71 LRB 38 PSB 36 SSB 40 VBB 36
59 13N 151 56E HD	1255	234	63	6 ANB292 ANB292 DSB328 FEB318 HLB330 LVB321
54 50N 80 2E HP	899	424	120	7 ALB 5 ANB329 BDB 52 BKB 56 BKB 56 GIB 2 HLB332
56 36N 37 9E IL	131	69	130	9 BDB 62 BDB 62 BKB 60 NOB 85 NIB120 N2B133 N3B150 SSB 40 VBB 36
44 32N 64 33E KV	957	246	132	15 ALB 30 ANB331 BDB 75 BDB 75 BEB 35 BKB 74 BKB 75 CAB 35 LRB 40 LVB325 NOB 85 NIB100
PSB 40 SSB 35 VBB 35				
43 15N 26 30E LA	610	99	132	16 ALB 48 ANB 2 BDB105 BEB 53 BKB114 CAB 50 DSB 32 FEB 25 GIB 37 KIB 39 LRB 49 LVB 27
NOB131 VBB 44 SSB 54 PSB 44				
55 43N 31 37E LK	147	75	106	15 ALB 35 ANB358 BDB 67 BDB 67 BEB 42 BEB 42 BKB 62 LRB 40 NOB 90 N2B145 PSB 35 SSB 40
SSB 40 VBB 35 VBB 35				
59 15N 30 58E LR	149	74	126	6 BDB 54 BKB 57 NOB 78 NIB121 N2B140 SSB 34
46 6N 137 7E LU	1705	550	53	5 ANB284 FEB307 HLB311 LVB318 DSB322
44 11N 62 50E MG	870	257	135	18 ALB 34 ANB331 BDB 75 BEB 35 BDB 75 BKB 77 CAB 30 DSB350 FEB354 GIB 17 HLB327 KIB 30
LRB 35 NOB 85 NIB104 SSB 38 SSB 38 VBB 32				
56 36N 36 10E NI	291	96	121	5 BDB 66 BEB 36 NOB 83 NIB120 VBB 34
40 12N 65 24E NK	1118	447	144	13 ALB 20 ANB332 BDB 77 BEB 35 DSB 3 FEB355 GIB 14 HLB326 LRB 30 LVB353 NOB 90 SSB 37
VBB 27				
49 11N 134 45E NU	1696	505	50	7 ALB330 ANB290 DSB325 FEB315 HLB314 KIB328 LVB318
48 55N 20 3E R9	169	70	126	13 ALB 41 ANB 2 BEB 50 BKB100 CAB 49 BDB 98 GIB 39 LRB 45 NOB130 PSB 42 SSB 37 VBB 41
NIB166				
49 12N 134 40E RA	1641	374	48	12 ALB335 ANB289 ANB289 DSB325 DSB325 FEB315 FEB315 GIB327 HLB315 KIB325 KIB325 LVB318
47 60N 30 6E SU	425	86	117	12 ALB 40 ANB 2 BDB 66 BEB 47 BKB 93 BKB 93 LRB 43 PSB 40 NOB116 PSB 40 SSB 42 VBB 40
55 32N 34 27E TF	399	95	99	5 ALB 31 ANB354 BDB 64 BKB 65 NOB 90
49 58N 16 46E U7	112	63	130	10 BDB 96 BKB 95 LRB 44 NOB140 NIB170 PSB 41 SSB 43 VBB 43 NIB170 LRB 44
55 28N 21 17E UA	87	70	114	5 BDB 67 BKB 56 N2B168 NIB154 NOB105
48 36N 24 42E UD	207	76	125	9 BDB 94 BEB 48 BKB 95 LRB 46 NOB123 PSB 44 NIB155 SSB 43 VBB 39
55 23N 38 40E UR	150	74	133	14 ALB 29 ANB356 BDB 64 BEB 36 BDB 64 BKB 65 FEB 7 NOB 90 NIB117 N2B133 N3B150 SSB 45
VBB 30 ALB 29				
47 56N 134 53E WQ	1696	368	47	9 ANB287 DSB325 FEB316 HLB313 KIB327 LVB317 ANB287 DSB325 ANB287
56 10N 35 45E WV	143	79	142	7 ANB356 BDB 65 BKB 62 NOB 95 NIB120 N2B138 N3B155
60 52N 128 53E ZA	2072	341	54	7 ANB306 ANB306 FEB328 DSB335 HLB329 LVB328 FEB328
55 59N 36 56E ZT	196	76	106	8 BDB 65 BDB 65 BKB 63 BKB 63 NOB 85 NIB120 SSB 38 SSB 38
51 11N 132 23E AL	1938	581	53	4 ANB293 DSB328 HLB318 LVB320
49 10N 20 20E B1	292	76	119	8 BDB 94 BEB 48 BKB 97 CAB 48 LRB 45 NOB128 PSB 43 VBB 40
48 22N 64 59E CB	1179	332	149	7 ALB 14 BDB 67 BEB 26 DSB355 FEB350 GIB 8 N3B121
51 59N 24 14E DK	883	90	96	9 ALB 42 BDB 79 BEB 46 CAB 45 GIB 32 LRB 43 SSB 41 VBB 39 BKB 80
43 44N 26 18E G3	2079	182	125	9 ALB 40 ANB 3 BDB105 BEB 53 CAB 50 KIB 38 LRB 50 PSB 43 VBB 44
49 25N 138 13E KU	1642	492	53	6 ANB288 DSB323 FEB307 HLB315 KIB326 LVB321
52 18N 138 52E ML	1631	471	55	5 ANB289 DSB324 FEB316 HLB319 LVB320
56 47N 59 13E MU	1022	485	110	4 ALB 24 ANB341 BDB 58 HLB337
44 31N 74 30E PF	1036	449	133	8 ANB327 BDB 67 BKB 70 FEB351 HLB325 LVB343 NOB 79 SSB 33
53 17N 27 14E RQ	400	99	112	7 ANB 4 BDB 75 BEB 44 BKB 45 CAB 44 FEB 21 NOB105
50 37N 13 58E S5	157	61	110	7 BDB 98 BEB 53 BKB 90 LRB 47 NOB145 SSB 46 VBB 41
48 48N 134 55E TK	1799	539	52	5 ANB288 DSB322 FEB316 HLB315 LVB316
56 25N 31 5E ZK	574	106	103	4 ALB 33 BDB 64 BEB 40 NOB 89

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